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SAVING THE PORT OF NEWCHWANG

Conservancy Works on the Liao River

The Liao River has been not inaptly described as taking the form of a horseshoe in plan as it rises in the hills almost due west of its mouth at a distance of some 280 miles from it and then follows an irregular course till it reaches Changchiatun, from which point it reverses its direction and for 300 miles to its mouth near Newchwang it is navigable at certain seasons of the year for junks drawing from 3 to 4 feet of water. It is thus seen to be a most important waterway for the distribution of produce throughout Manchuria.

Newchwang, which is the seaport near its mouth, is one of the oldest Treaty Ports in China and until the advent of railways, and the opposition port of Dalny, its trade was of vital importance to the province. Its imports consist of cotton goods, kerosene, sugar, flour, hard coal and other materials; and it exports beans, bean cake, bean oil, mats, cured fish, skins, rugs, medicines, etc., as well as spirituous liquors and bituminous coal.

From the river mouth to Newchwang, a distance of 16 miles, there is sufficient depth of water for ordinary coasting steamers, so that until railway competition took place there was an immense traffic of junks and other vessels on the river.

So recently as the Russo-Japanese war, during the time of the Russian occupation, it is claimed that 40,000 junks were registered as trading in the river. Sir Alexander Hosie, in his book on Manchuria, places the number in 1904 at not less than 20,000, which was then increasing. Taking the more moderate figures, and counting each junk as carrying a crew of six men, a total of at least 120,000 men must have been engaged in the traffic apart from those employed on shore in connexion with it.

But now, owing to the railway competition of the South Manchuria Railway on one side, and the Chinese Government Railway on the other, and the superior advantages offered by the port of Dalny, coupled with the effects of a neglected river getting more and more difficult of navigation each succeeding year, the number of junks engaged in the river traffic has fallen to less then 1,000.

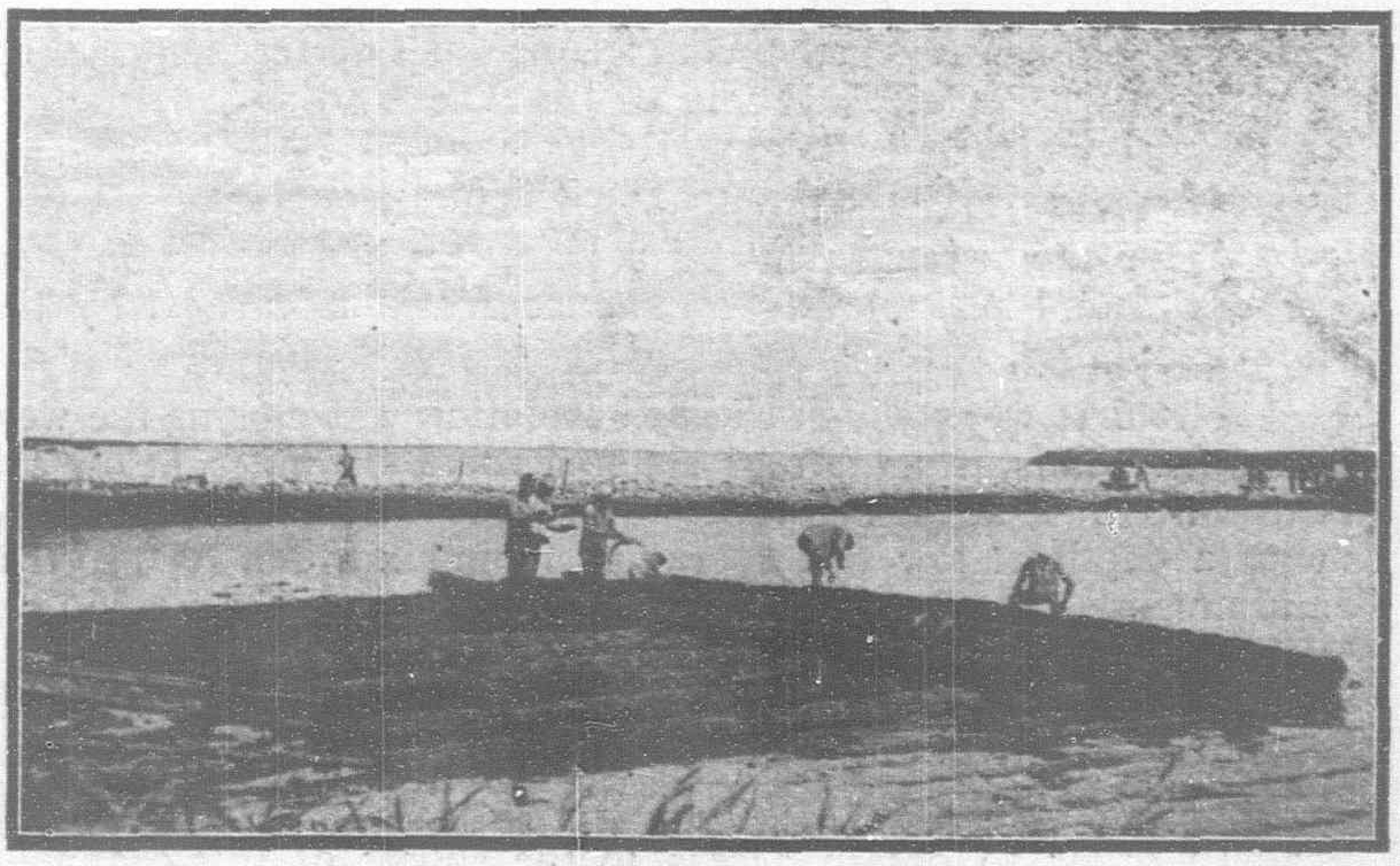
The general trade of the port has also suffered seriously from the discriminating freight rates of the Japanese controlled ports of Dalny and Antung.

It is obvious that under the conditions mentioned above it would be hopeless ever to think of restoring the junk traffic to its former importance, but nevertheless, in the interests of the trade of the port, every effort should be directed to maintaining and improving the river and so removing the natural obstacles as far as it is possible to do so.

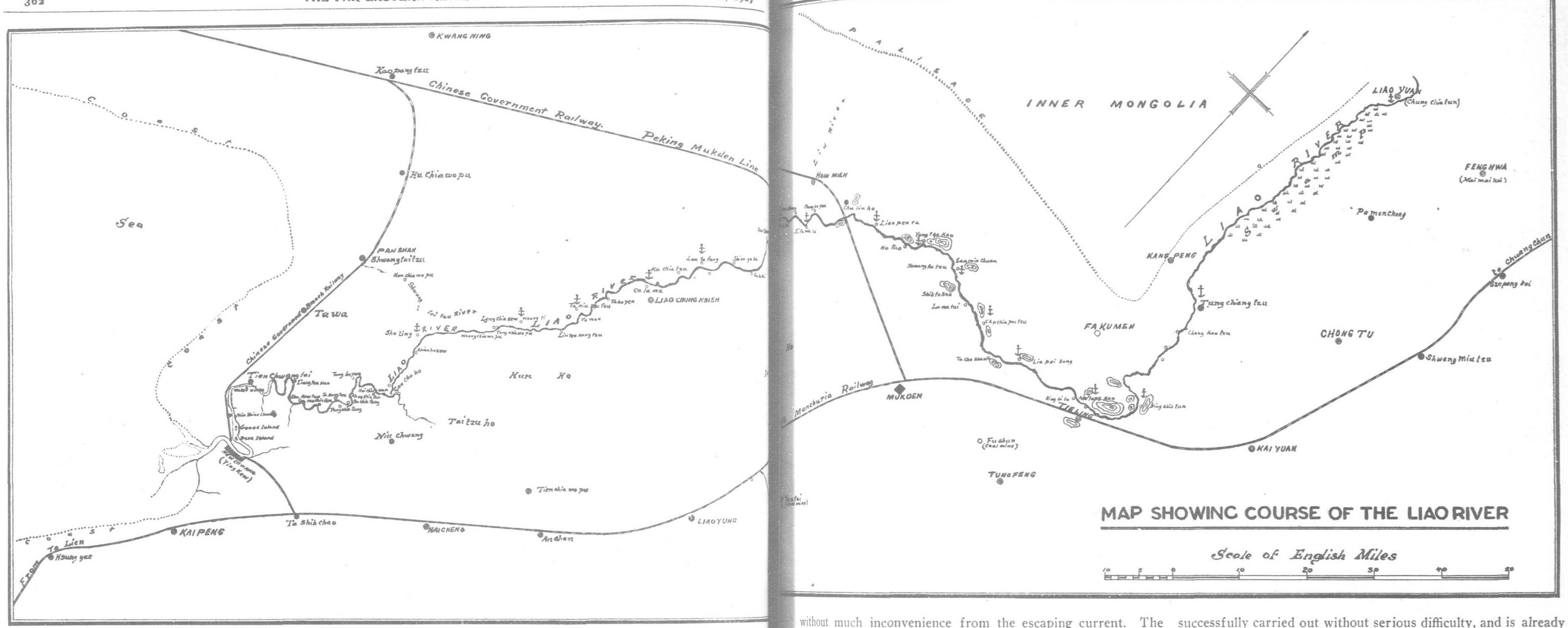
Accordingly a Conservancy Board was formed at the instance of the Chambers of Commerce, and agreed to between the Consular Body and the Chinese authorities. This was ratified by the Diplomatic Body in Peking in 1914, and the works were put in hand under the direction of Mr. W. R. Hughes, M. Inst. C. E. of London.

By this agreement the works of the upper River, that is all above Treaty Limits, were to be carried out under the same engineering direction, but at the expense and under the control of the Chinese Authorities. All below Treaty Limits to the river mouth was to be controlled by the Conservancy Board. Funds for this part of the work were to be provided for by a sur-tax on customs duties. The works of the Upper and Lower

Bending Willow Rolls to Make the Mattrass



Mattrass Being Built in Shallow Water for Towing into Position



Conservancies, it was agreed, were to be carried out simultaneously.

It thus devolved upon the Chinese Authorities to provide means for carrying out the improvement of the river upwards from Newchwang for junk traffic, one of the most pressing works being the closing or regulation of what is known as the Shuangtaitze Channel—a branch which the river has cut for itself in recent years by which the greater portion of the water of the Liao is diverted by a shorter route to the sea from a point 90 miles above Newchwang.

The works under the control of the Lower Conservancy Board consist of the deepening of the Bar by the construction of training banks and dredging, the closing of the East and West Channels and the protection of Duck Island Bend.

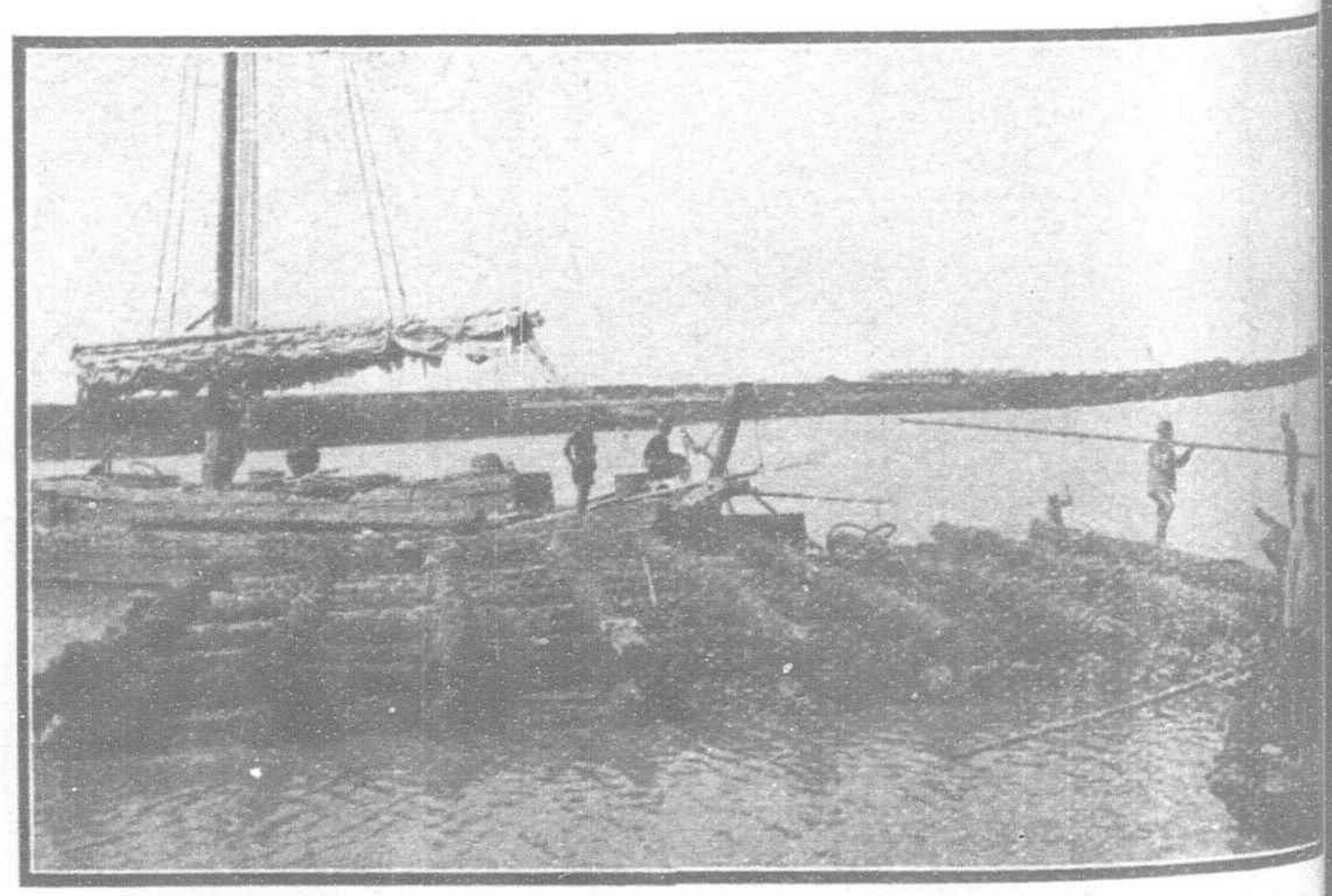
After the arrangement of a loan, etc., had been completed it was found possible to commence work in earnest by the middle of May, 1916.

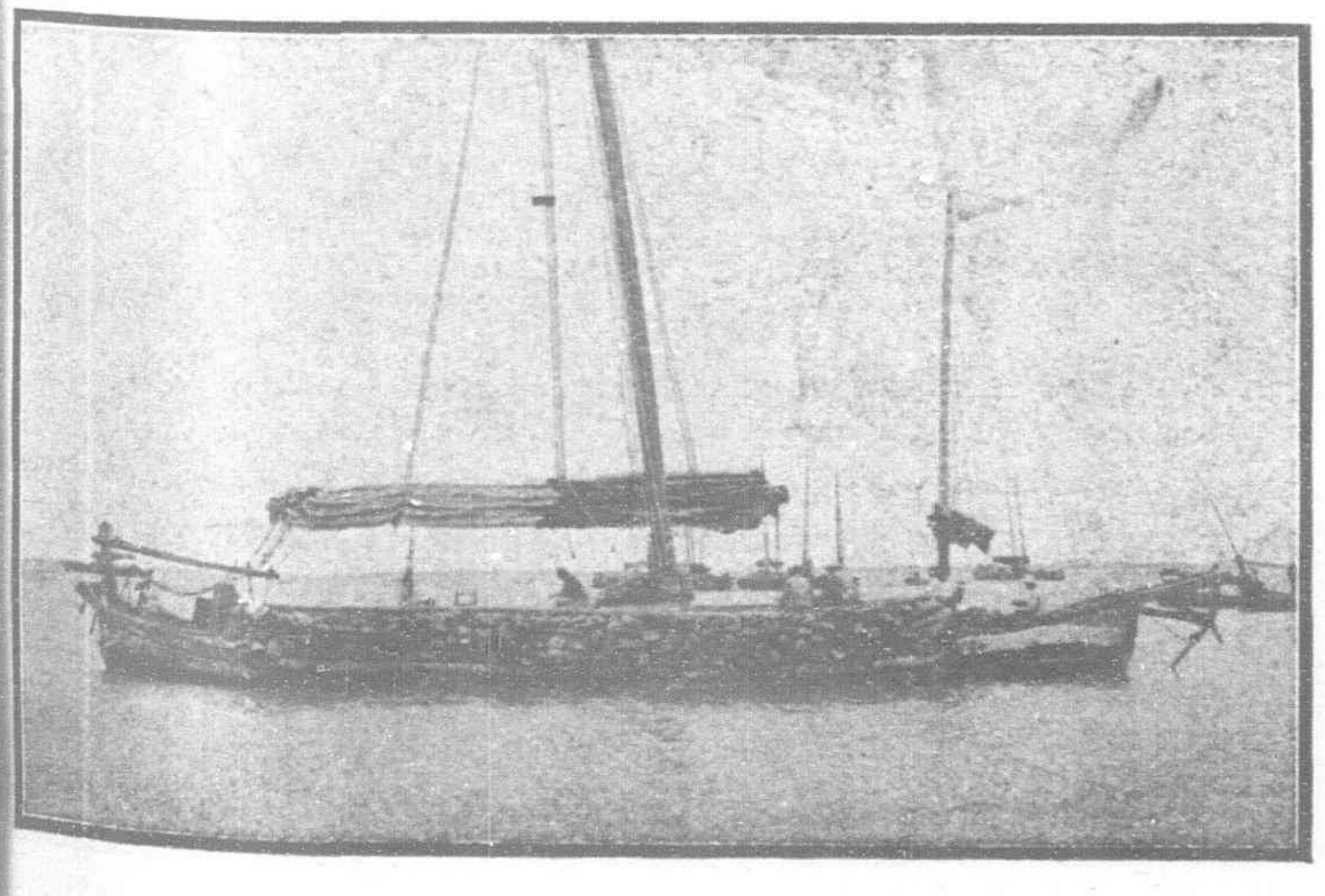
The first work which claimed attention was closing the west Channel. This is a natural channel some six miles below the Custom House at Newchwang. It was over a mile in width and with a depth at low tide averaging from six to ten feet, so that an immense quantity of water escaped down it to the sea without going over the bar. As this current of water had at times a velocity of seven knots an hour, it was necessary to close the channel and direct the water on to the bar, so that its scouring effect could aid in the desired deepening.

In order to obtain access to the shores of this channel a path or causeway had to be made through the soft silt so that men could walk safely, on their way to and from the work. For this purpose 3,000 feet of reed and willow mats were laid down and securely fastened against the rising tides.

Even a working yard had to be secured by a surrounding embankment to exclude the tide so as to have a dry place in which to prepare the willow mattrasses it was intended to use.

The method adopted in closing the West Channel was to make a series of small islands of rubble stone, founded on reed or willow mats. By this means a certain number of the gaps between the islands could be filled in at slack water of each tide without much inconvenience from the escaping current. The velocity of the current depended very much on the wind as well as the tide, being sometimes almost too strong to admit of work being carried on at all. The embankment was made of rubble stone and naturally varied in width of base according to the depth of water. It was raised up to half tide level or to the same as the mud banks on either side, being in places sixteen feet high, and willow or reed mattrasses were worked into the body of it to help to entrap the silt. Apart from a certain amount of trouble caused by the strong current at that place, the work was successfully carried out without serious difficulty, and is already having a marked effect in scouring the main river in its neighbourhood.


Mattrass 45 feet by 35 feet in Position Ready for Sinking


Transporting Stone to Site of Breakwater

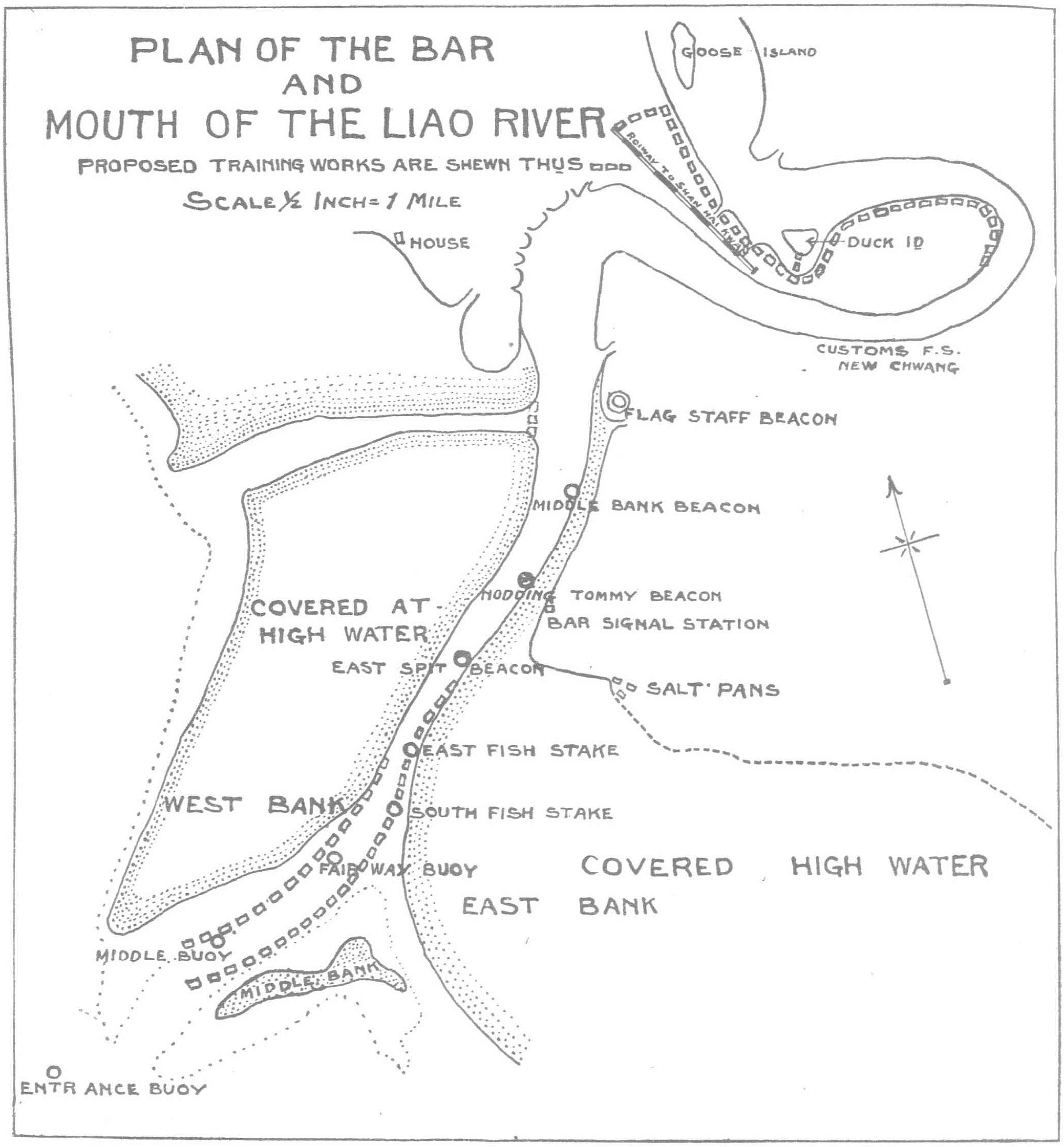
The works of the East Channel and training banks are being carried out in a similar manner and with less difficulty, because there is no cross current to deal with. The object of these latter works is to reduce the irregular width of the river at that place and confine the current in such a way that its force will be directed to deepening the bar and so make a permanent improvement and save a considerable amount of dredging that would otherwise be necessary. Fairly good progress was made with this work during the past season, more than one and three quarter miles of stone embankment being in various stages of advancement.

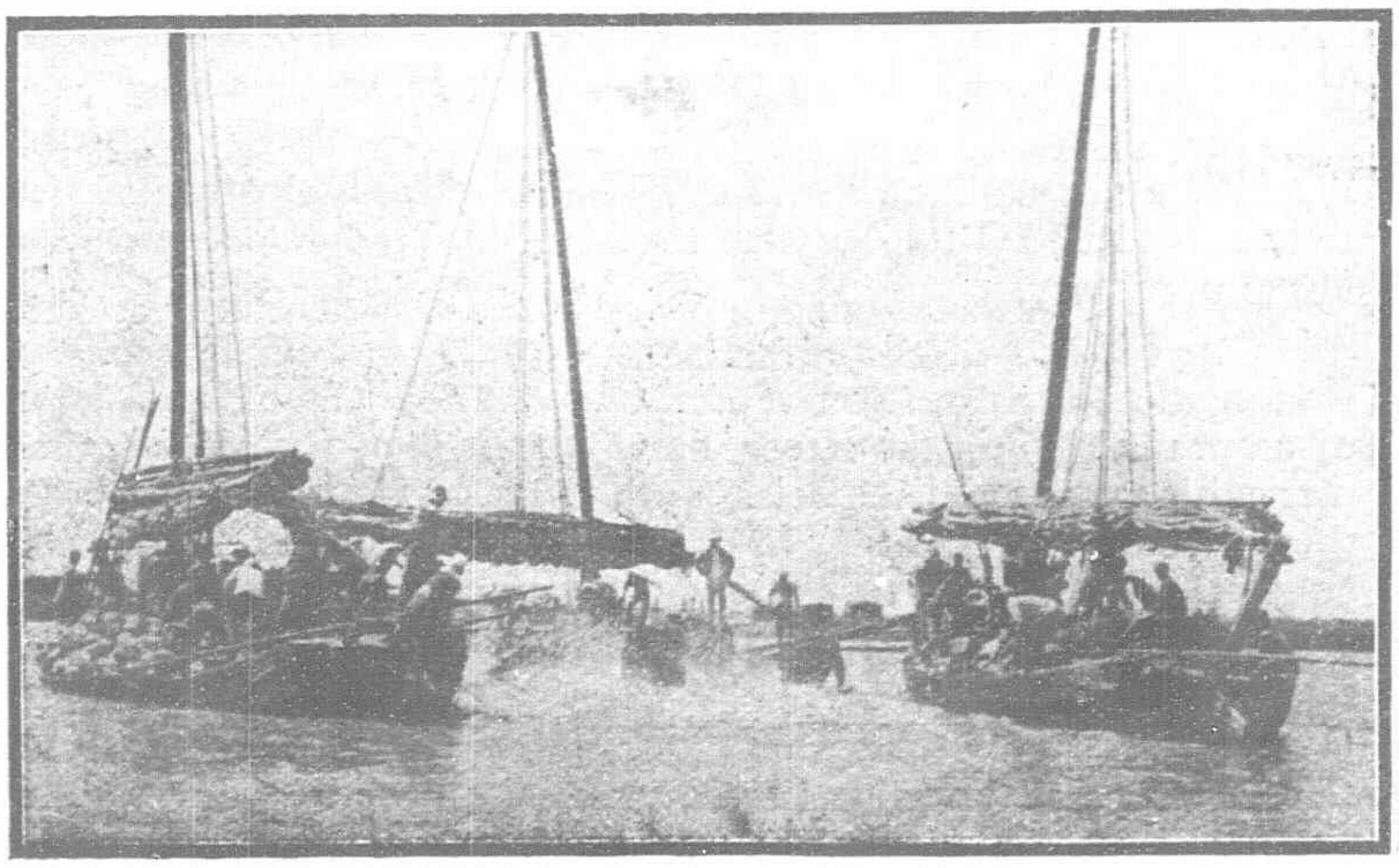
When the training banks are completed on both sides of the river it is intended to complete the work by dredging as may be found necessary.

One of the works undertaken and completed during the past season was the protection of Duck Island Bend from the danger of a cut off. The Liao River, flowing as it does for many miles through soft alluvial deposits, with bank levels but little above the surrounding country, has, like all rivers of the kind, been subject to sudden cut offs at one or more of its many bends.

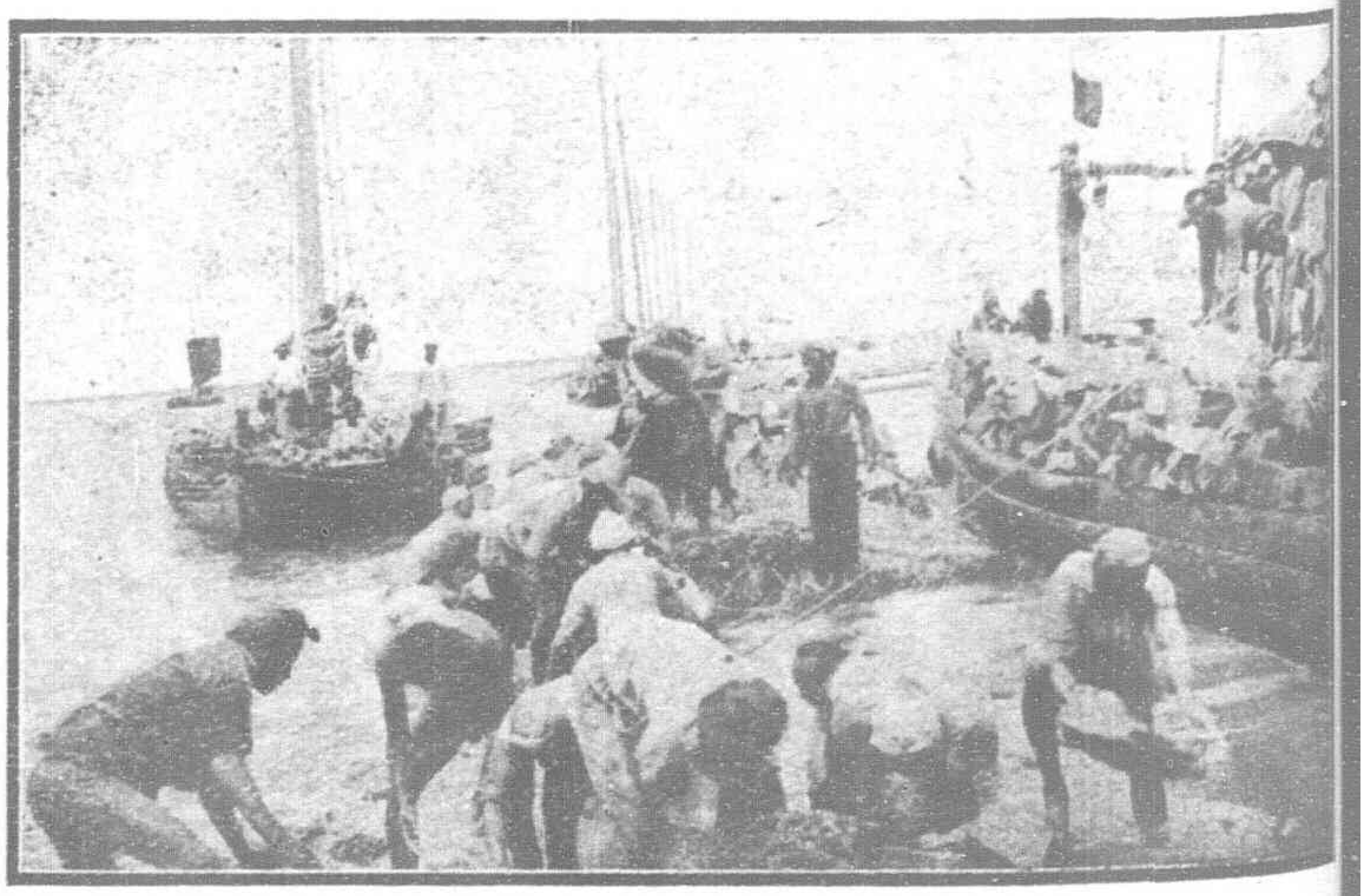
In 1888, in a sudden and prolonged flood, a great cut off at Tienchwangtai, some 12 miles above Newchwang, shortened the river course by fifteen miles and left many villages high and dry which were, up to that time, situated on the banks.

The possibility of a similar cut off has for a long time threatened to change the course of the river at Newchwang by

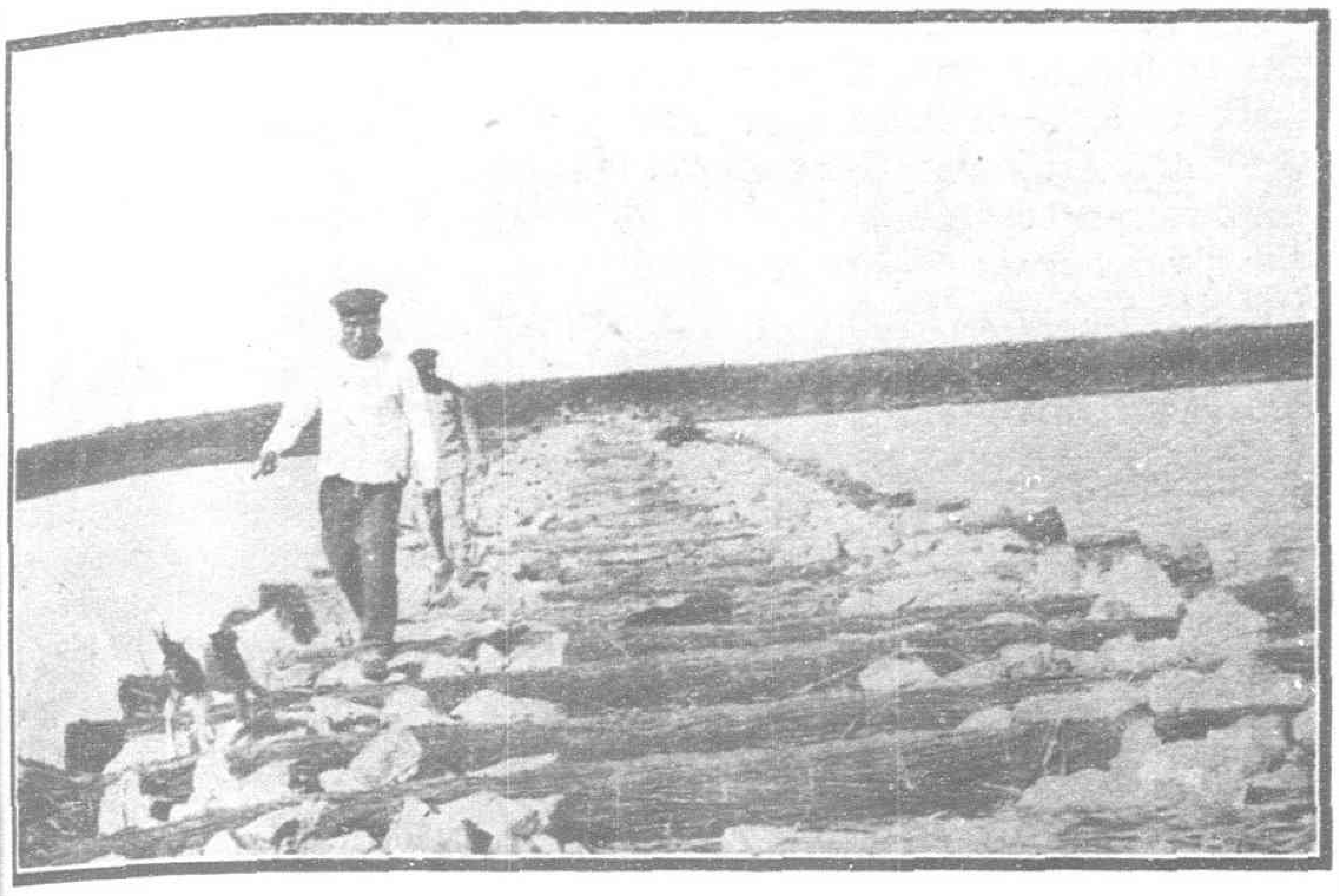




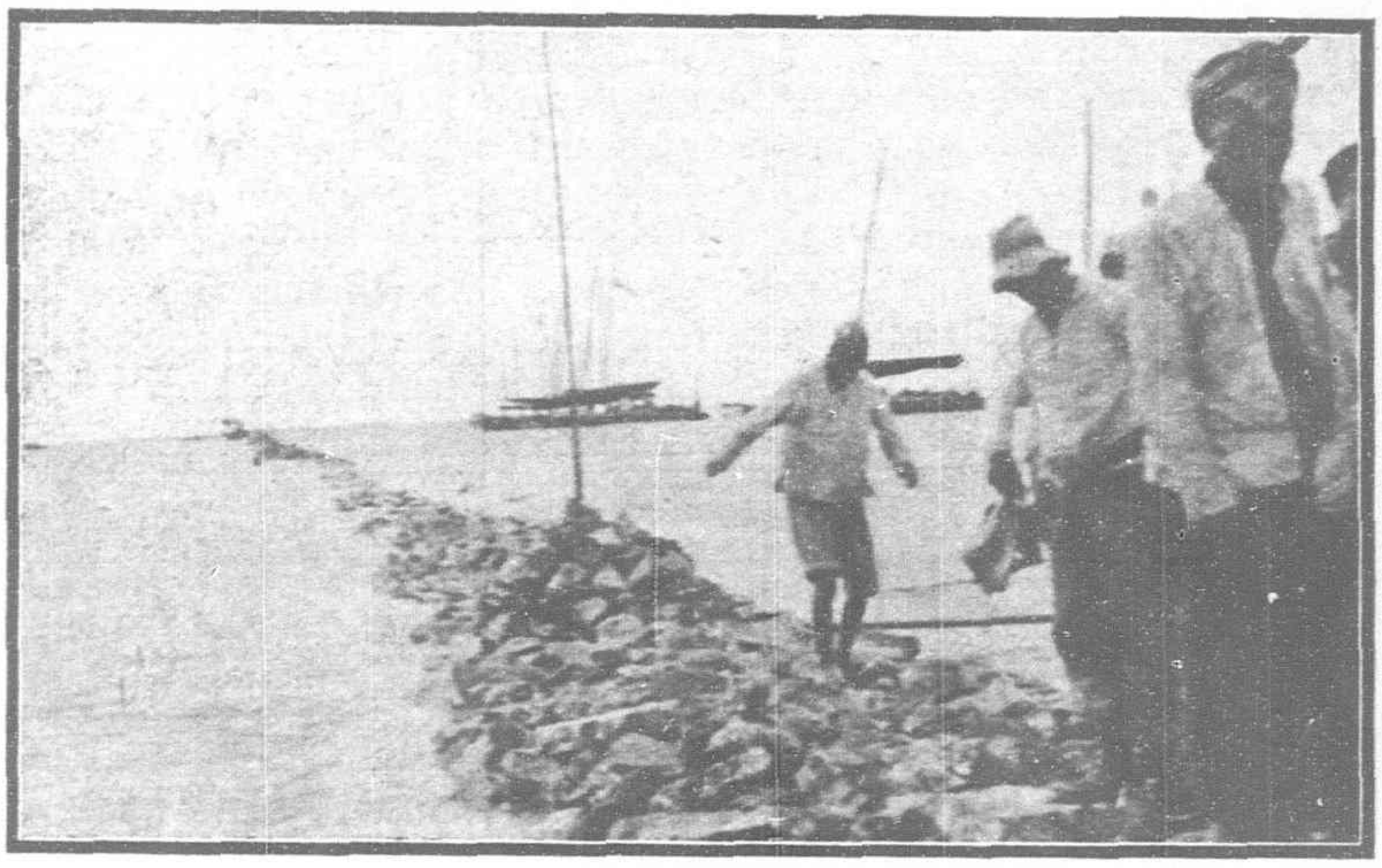
Sinking Mattrass by Filling with Stone Thrown by Hand



Working Reed Mats into Embankment to Catch the Silt



BARRIER AT DUCK ISLAND AT THE FINISHED LEVEL



WEST CHANNEL EMBANKMENT IN CONSTRUCTION

cutting through the bend at Duck Island, where the width at the concave was being reduced year by year till only 1,500 feet of solid ground remained, and this might easily have been cut through in any sudden flood. The consequences of this would have been to leave all the present business and river side properties of the port uselessly stranded away from the river and might conceivably have created disaster in the native city also.

The object of the Duck Island works was to make such a cut off impossible by stopping the erosion that was going on at the concave, and making an embankment or dyke to prevent the overflowing of the neck of the bend itself.

In order to do this a low dyke or embankment was first constructed along the river edge for a distance of six miles, joining the railway bank above Goose Island. This effectually provided against any danger from the neck of the bend being overflowed.

For a considerable distance this embankment was made through low lying swampy land where it was difficult to dig by ordinary means, so two Priestman Dredgers with buckets of 44 c. ft. capacity, which happened to be at hand, were mounted on trollies and rails, one on each side of the bank, and so employed in making it.

The next and most important work was to stop the erosion that was going on in this concave, and in order to do so it was decided to erect a dam or barrier between the island and the main land.

The distance was 600 feet and the depth reached to 34 feet with a rise of tide of 11 feet 6 inches, and a very swift current flowing through.

It was expected that if this barrier could be successfully constructed, Duck Island would become as it were the head of a groyne, and the current would be deflected past it, the bye course or channel between the island and the main land would fill up with silt and so the mischievous erosion would be permanently stopped, thus putting an end to the threatened danger of a cut off of the port.

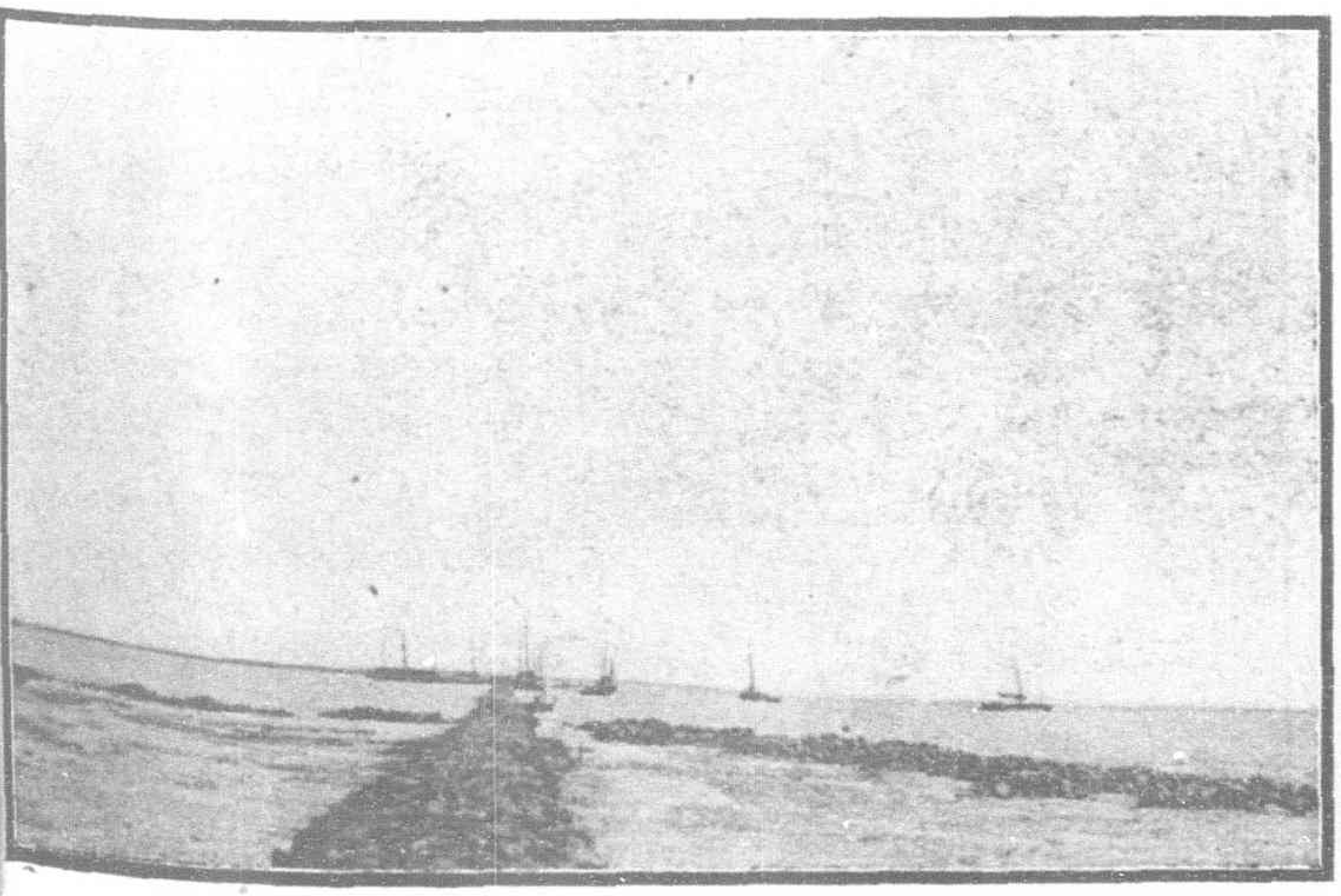
This question of the erosion at Duck Island was dealt with by the late M. de Rijke, Engineer-in-chief of the Hwangpoo Conservancy, in his report on the Liao River in 1908, and he advocated protecting the foreshore of the bend by *gabbinoi* and and stone pitching as well as a short high embankment. In order to carry out this class of work he considered that it would be necessary to bring expert workmen from Holland. He stated also as his opinion that to attempt to close the bye course by a rubble bank, as had been proposed, would be almost impossible except at enormous cost, owing to the current.

Notwithstanding the opinions of M. de Rijke, whose great experience entitled them to all respect, it was decided to close the bye course entirely by a dam made of willow mattrasses and rubble stone.

This was effected in the following manner:—

Mattrasses 35 by 45 ft. were built on shore between high and low water. They were made of long rolls of willow bundles one foot in diameter, which were tightly bound together with wire as seen in the illustrations. These bundles were also bound together wherever they intersected one another and as soon as each mattrass was ready it was towed out at slack water after high tide, and securely anchored over the position it was intended to occupy. It was then rapidly loaded with rubble stone until it sank. In this way successive layers of loaded mattrasses were sunk, breaking joint until they reached the surface.

The dam thus made was completed without much difficulty and at a very moderate cost and is answering its purpose most satisfactorily as is seen by the rapid accumulation of silt on both sides of it, and the bye course, at the present rate of accumulation, will soon be entirely filled up.



WEST CHANNEL EMBANKMENT NEARING COMPLETION

THE PATHWAY THROUGH SILT ON FINISHED EMBANKMENT

No difficulty was found in teaching the Chinese workmen what was required by means of models made to scale and verbal explanation, and although they had seen nothing of the kind before they soon became quite expert in making and sinking them in place.

The stone required had to be transported by junk from a distance of thirty miles from the bar. The willows and reeds required were easily obtained from places along the river.

So far very good progress has been made with the works entrusted to the Lower Conservancy—not so, unfortunately, with the works of the Upper Conservancy, where financial and political reasons have prevented anything being done up to the present, although the works required are of the greatest importance to the Chinese trade of the districts through which the river flows. Some years ago a weir was constructed across the Shuangtaitze branch, but the natives refused to allow the old river course to be closed up alongside of it, and thus the new work remains useless.

THE GRAND CANAL IMPROVEMENT

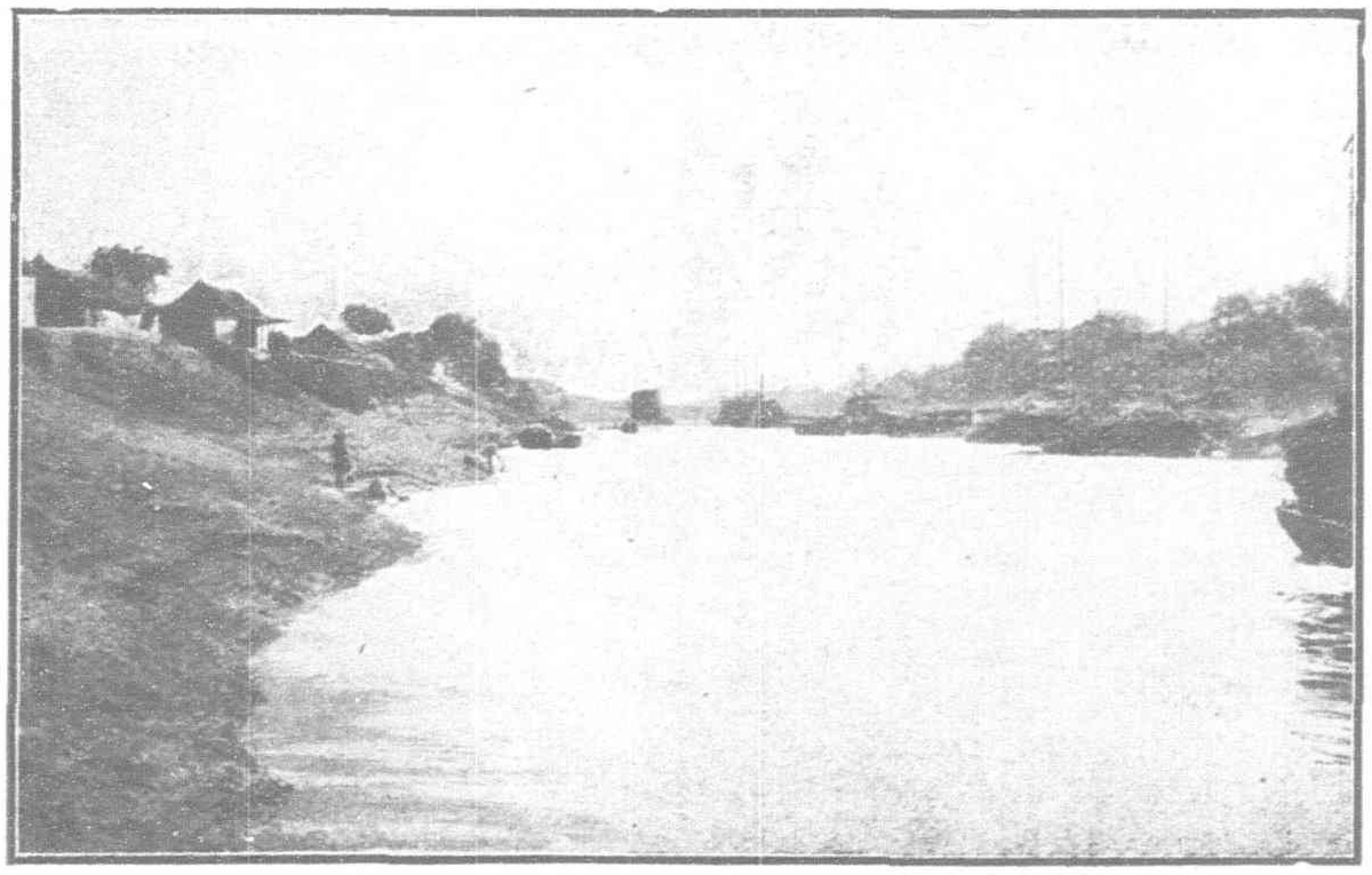
Report by the Assistant-Director of the National Conservancy Bureau

The recent signature of an agreement between the Siems-Carey Railway and Canal Company and the Chinese authorities for the renovation of the Grand Canal in Shantung and Kiangsu Provinces was enthusiastically welcomed by those Chinese who have for years been working to secure consideration of the important problem involved. Foremost among these men was Mr. Pan Fu, Assistant Director of the National Conservancy Bureau, who has labored for years to awaken the Government to the importance of restoring the ancient waterway, and the necessity which existed for attention to the rivers which have for so long been spreading disaster and ruin among the inhabitants of an extensive and potentially rich agricultural region. With the signature of the agreement Mr. Pan Fu set about making a report upon the area that would be affected by the work, and he recently submitted it to the Government. By long study he has acquired an intimate knowledge of every river and lake constituting the menace to the territory affected by their floods, and in his report he offers a scheme for their control.

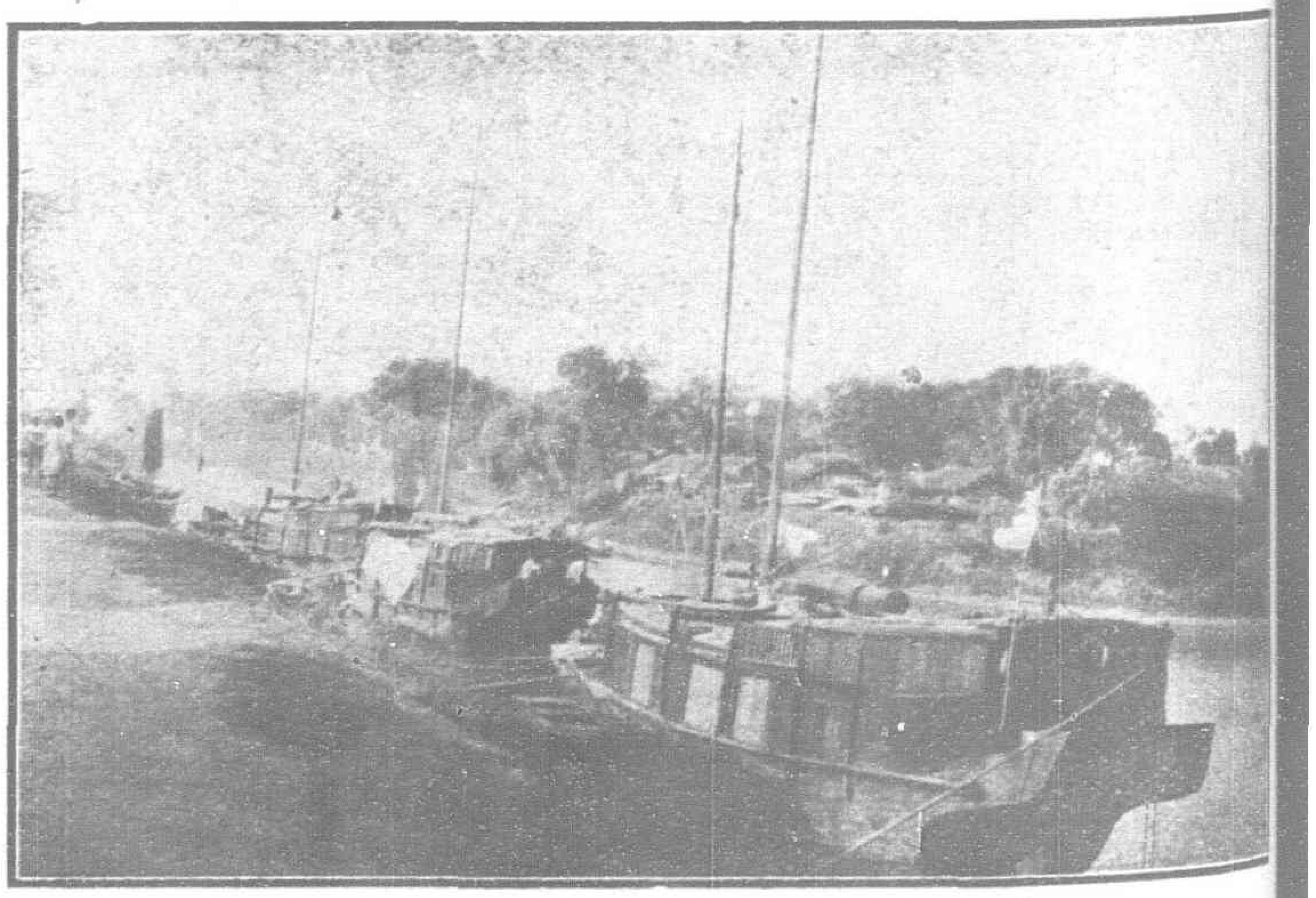
The report, too long to be printed in full, is exhaustive and well written, and in addition is replete with valuable information to the engineers whose task it will be to carry out the improvement.

In referring to the Kiangpei section of the Canal Mr. Pan Fu gives some idea of how it has been put out of commission. He says it had its birth at the time of Wu, when the Han Kow was cut and the Yangtze and the Hwai Rivers were connected. During over two thousand years of its existence efforts were made to improve its condition and to lengthen its channel. The Yuan, Ming and Ching Emperors continued in succession to make the canal what it is by cutting the Wai-tung-ho, the Chia-ho, the Chao-ho, and the Chung-ho. Formerly, the Canal was greatly used and every year millions of piculs of rice were transported over it. Masts were seen along the Canal like forests, and Kiangpei acted as the throat to this important transportation system. But all the time the engineers of the Canal were confronted with the question of how to supply the Canal with enough water. The presence of the Yellow River and the Hwai River complicated the situation. Efforts were made to get water from the other streams, and the engineers were busy with the task of preventing the disaster from the Yellow River and the Hwai and at the same time of providing the Canal with sufficient water for navigation. Finally, the Yellow River came, and the case of the Grand Canal became hopeless—the fault being not with the Grand Canal but with the Yellow River. The beds of the Hwai, the Sze, the Yi and the Shu rivers were all raised by the silt, and floods have been of yearly occurrence since the Yellow River left for the North. During years when freshets of the Yi and Hwai occur at the same time the situation becomes very serious. Some will still remember the year when a break occurred at Chingshuitan and its lamentable consequences—even now, when you look over the country from the east dyke you will see the remains of that great disaster. The flood of 1914 was caused by the freshet of the Yi, and not of the Hwai. This year floods occurred in the Hwai district only and the Yi River had very little water. What will be the consequence if the freshets in the Hwai and in the Yi occur in the same year? In talking of the Grand Canal, it must be remembered that the Yi, the Hwai and the other rivers flowing into the Canal are of more importance, and so on my last trip to the Grand Canal I paid equal attention to the other streams.

The distance from Wonglingchwang to the three locks at Tsingkiangpu is 350 li; and there are three cities and eleven villages on the way. The distance from the three locks to Kwachowkow is 320 li, and there are five cities and twenty-one villages on the way. This section of the Canal forms the most important line of communication between the North and the South—it is connected with the Shantung section of the Grand Canal and the Tientsin-Pukow Railway on the north and the Yangtze River on the south. Formerly, this section of the Canal



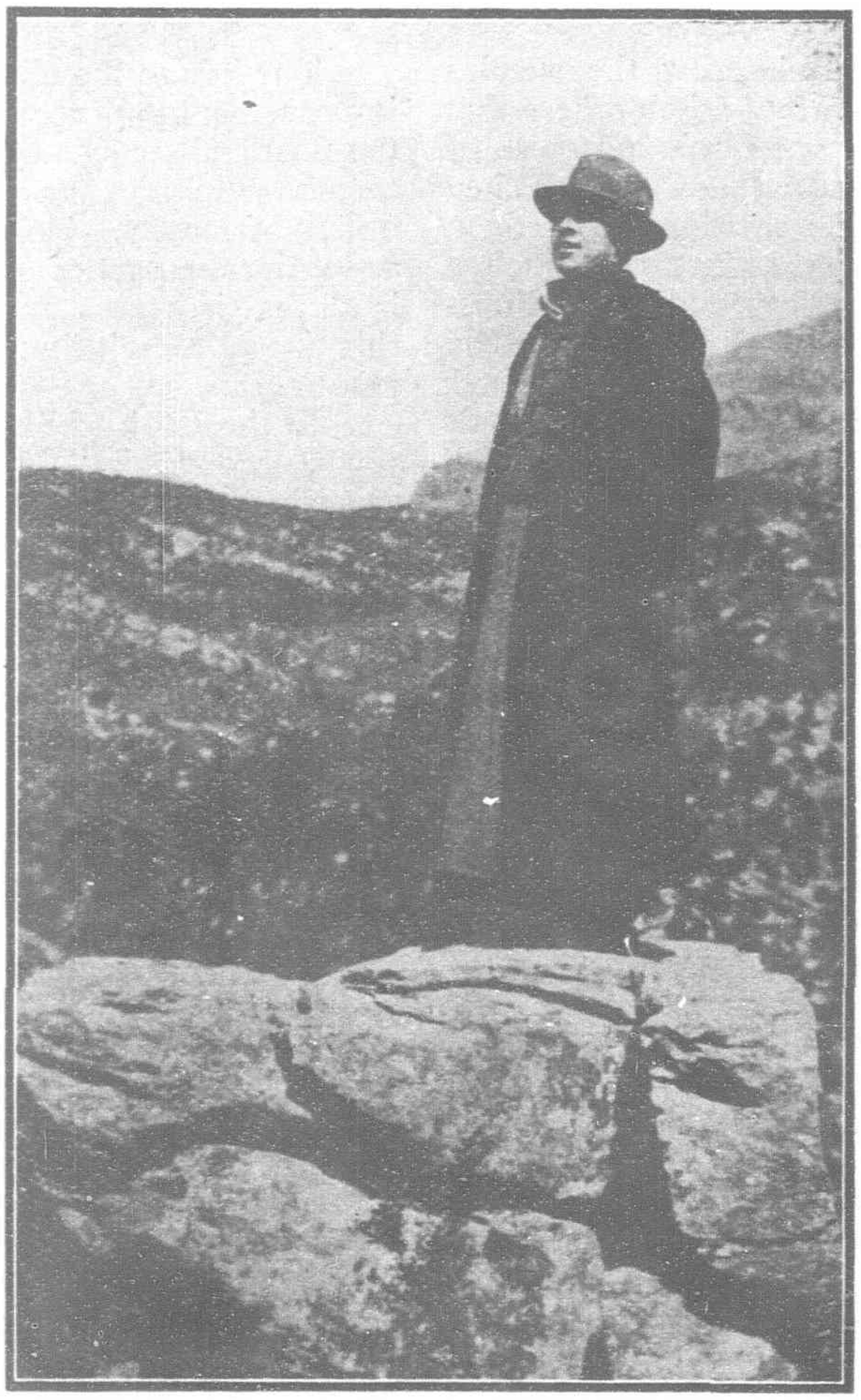
THE GRAND CANAL



HOUSEBOATS ON THE GRAND CANAL

was an important highway for merchants and travellers but now it is very little used. Since the time when the Imperial grain was transported to Peking by the ocean route the Government has neglected the maintenance of the Canal. Not only no improvement has been done recently but even patching up work has been neglected. The Canal is now in a very bad condition—very different from what it was. The size of the channel and the slope of the bed are not of proper dimensions. As a consequence, the section of the country belonging to the Pi, Su, Sze, and Hwai districts has turned into a wilderness and the inhabitants are lean and pale with hunger and suffering. But the section of country south of Tsingkiangpu, to the east of the lower section of the Grand Canal, is in a quite different state. There are numerous sluices at the lower section of the Canal and so the Canal acts as a source of supply to the farms east of the Canal. During dry seasons when the water in the Canal is low and insufficient the sluices are opened to let out water, and in wet seasons when the water in the Canal is high and in excess the sluices are closed to prevent the water from flowing out. This situation must be remedied.

In improving the Grand Canal so as to facilitate transportation the slope of the Canal bed and the size of the cross-section must be carefully calculated and changed so that the Canal will give ample space for navigation. From the standpoint of irrigation, the sluices and dams must be properly regulated. The Chinese are accustomed to the use of weirs, but it seems to me, the weirs are not so convenient as locks. In Western countries automatic locks are in common use and they are better than the needle locks we have along the Canal. If the Canal is given a proper slope and a proper cross-section, shipping people will have no difficulty in sending their boats from one point on the Canal to another. The amount of water in the Canal can be controlled by properly designed locks and sluices. Thus there need be no anxiety over floods and droughts. But above all, the source of supply for the Canal must be carefully studied and controlled in order to obtain satisfactory results. The Yi and the Shu ought to have separate outlets and the Hwai ought to be given a free outlet to the sea and the Yangtze. Moreover, the effect of the Sze and the Wen upon the Shantung section of the Canal is of importance and so these two rivers should be controlled.



Director General Pan Fu on Tour of Inspection

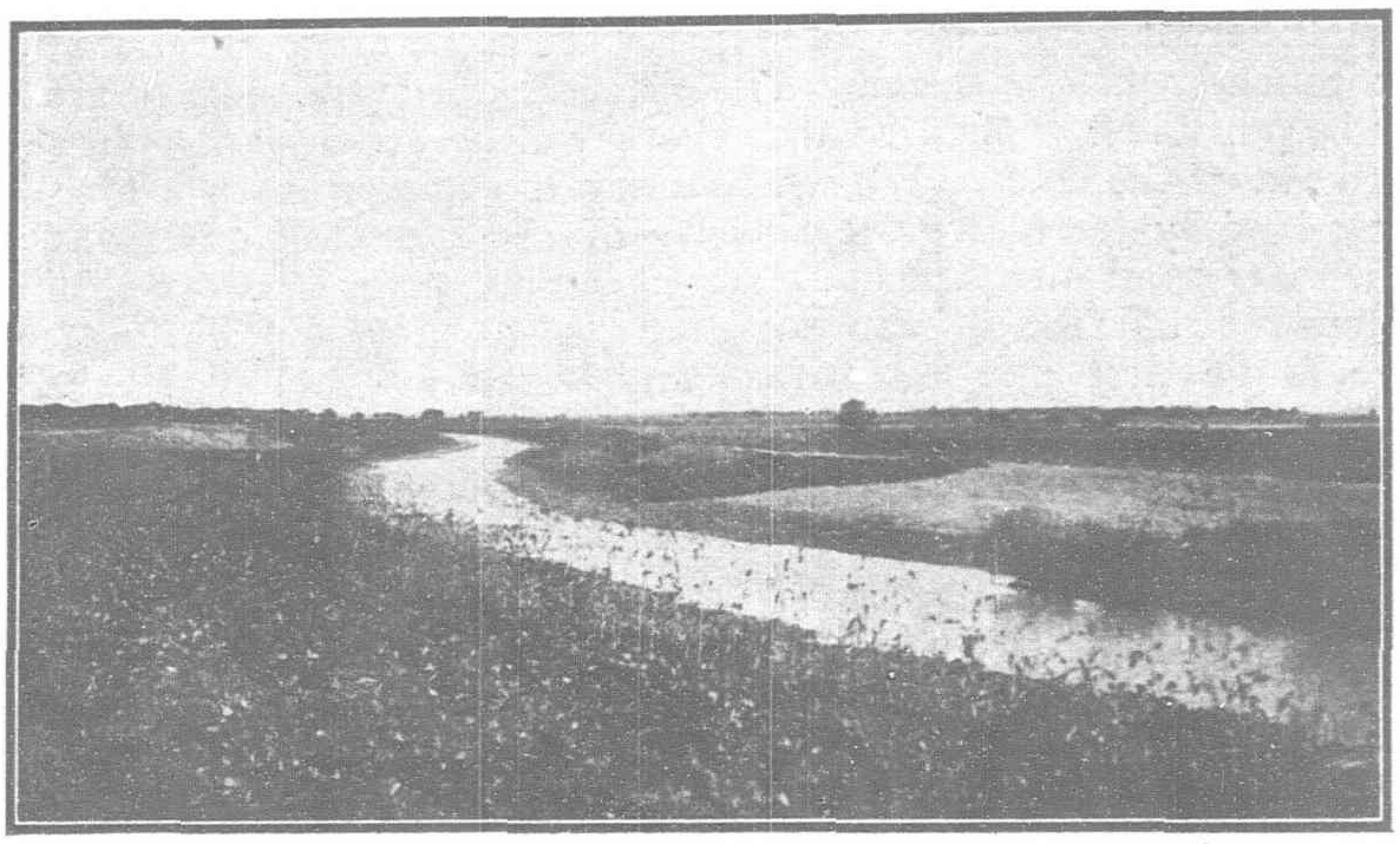
Having described the conditions of the Sze-ho and Weishan Lake, Mr. Pan refers to the Shantung section of the Canal. The words Kiangsu and Shantung, were, he explains, only intended for administrative convenience, and should not be used to differentiate parts of the same stream. The people living along the Grand Canal are inhabitants of the same valley and they are intimately related, for they have the same interest in view. The objects of the Shantung project are practically identical with those of the Kiangsu project, and the method of procedure is to improve the Wen and the Sze rivers. The only difference between the two sections of the canal is the difference between the nature of the Hwai River and the Sze River.

The Shantung Grand Canal needs immediate improvement on account of uneven cross-sections and improper gradient. And then the different inlets and outlets are not under proper control. In order to prevent flood and disaster, the channel must be dredged so that the water will have an easy flow, and the dykes must be reinforced to prevent any possible dyke-breaks. It is our aim not to decrease the original capacity of the different lakes—the silted parts are to be dredged so that more water may be stored. The different inlets and outlets are to be put under control so that there will be an easy flow into and out of the lakes. We will not try to reclaim any unclaimable land by decreasing the capacity of the lakes. Even if any such unreasonable step should be taken the farms between Wei Shan Hu and Tai Chwang of over 70 li (33 miles) in length would be first affected before any disaster could visit the Kiangsu Province. What we are anxious to learn from Kiangsu is the amount of water it expects from Shantung yearly so that we may have some data upon which to base our calculations. We do not want to see the Kiangsu Province flooded with water from Shantung and we also do not want to see Kiangsu suffering for not having sufficient water for irrigation and navigation. What we are anxious to accomplish is that after the Grand Canal Project has been carried out, the farms between the Yellow River and the Yangtse River will turn into rich lands and the trade and industry along this canal will develop and prosper. The people as well as the country will be benefited. But this responsibility rests with the people of Kiangsu as well as the people of Shantung.

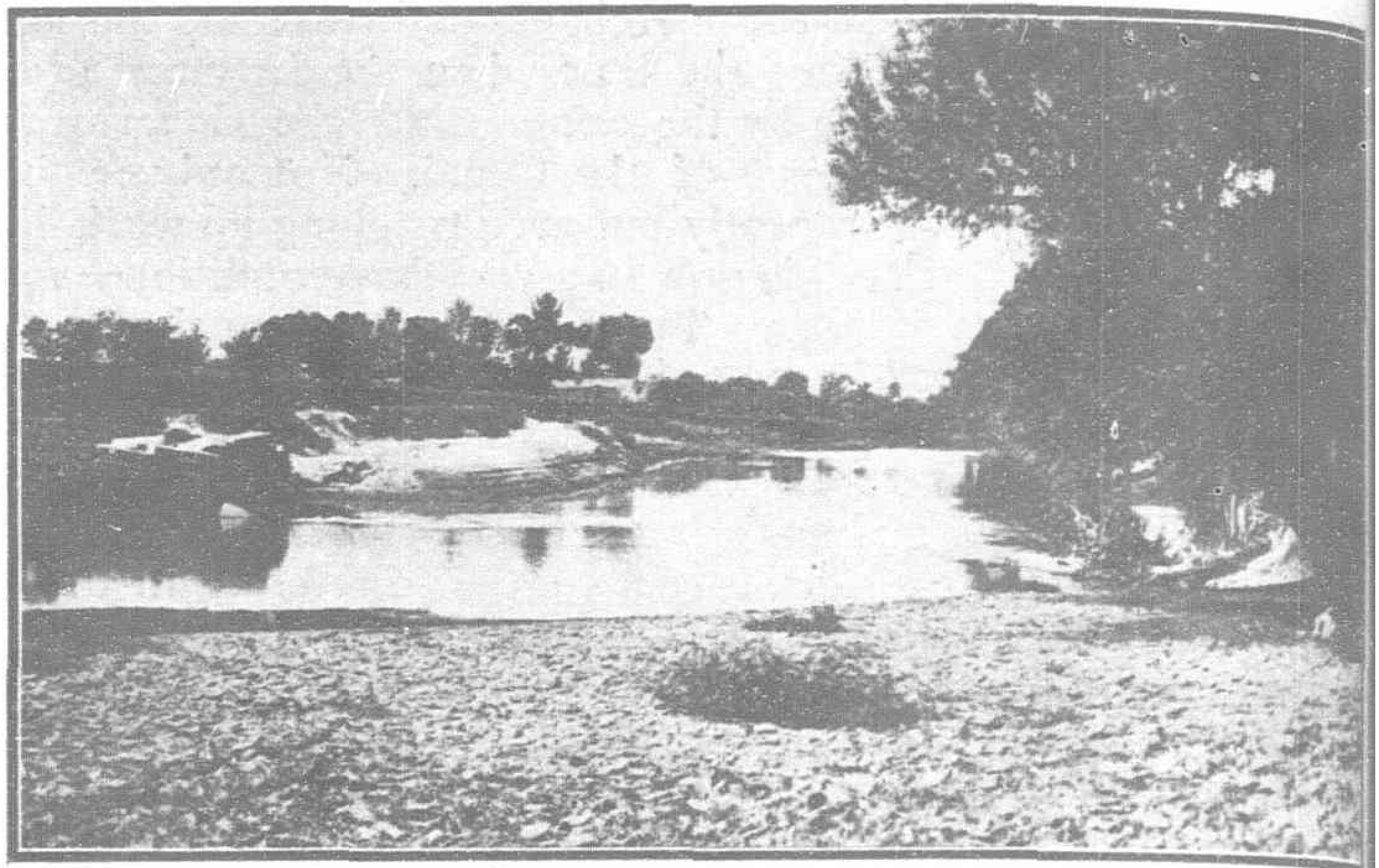
The system of the Yi river, the Shu river and the Grand Canal are also vastly complicated. They run into each other, blockade each other's way, and throw their tributaries out of their natural courses. To separate the Yi from the Central Grand Canal is only to ensure the safety of the latter, but the trouble does not end there. In order to protect all the districts through which the Yi and the Shu pass, it is necessary to strengthen the dykes and embankments of the Sheng Wei-Ho so as to enable it to keep its current within bounds in time of high water, and to build locks at Ling Kow and Chow Kow to regulate the discharge. By so doing we shall provide for each of the three river systems—the Yi, the Shu and the Grand Canal—a distinct course and a separate entrance to the sea, without any one of them interfering or obstructing the channels of the other. The terrible floods and famines that have wrought havoc for centuries upon millions of people and throughout thousands of square miles will be brought to an end.

The Inner Grand Canal depends upon the Hwai river and the Yi river for its supply of water. The headwaters of the Hwai are found in the district of Tungpeh, Honan. It, with the Hungtze Lake as its reservoir, drains the whole section of northern Anhwei and part of eastern Honan. The lake has two outlets; namely, the Tsiang Pa in the southeast and the Changfu-ho in the northeast. The discharge from both outlets flows ultimately into the Inner Grand Canal. If, at times of ordinary high water, only one-tenth of the Hwai discharge runs into the Grand Canal through the Changfu-ho it is yet sufficient to check the downward flow of the Central Grand Canal from the north. Whenever there is a great rise of the flood water in the Hwai all the Inner Grand Canal is filled with Hwai water and cannot possibly receive any water from the Central Grand Canal. The bed of the northern section of the Inner Grand Canal is higher than that of the Lake but its northern section is much lower. As a result the flow through the Canal is rapid and there is no tendency to form a bed of uniform grade.

On the eastern bank of the Canal there are found at different places dams, sluices, and culverts over fifty in number.



Silted-up Portion of Canal



Remains of Weir at Changchiachiao

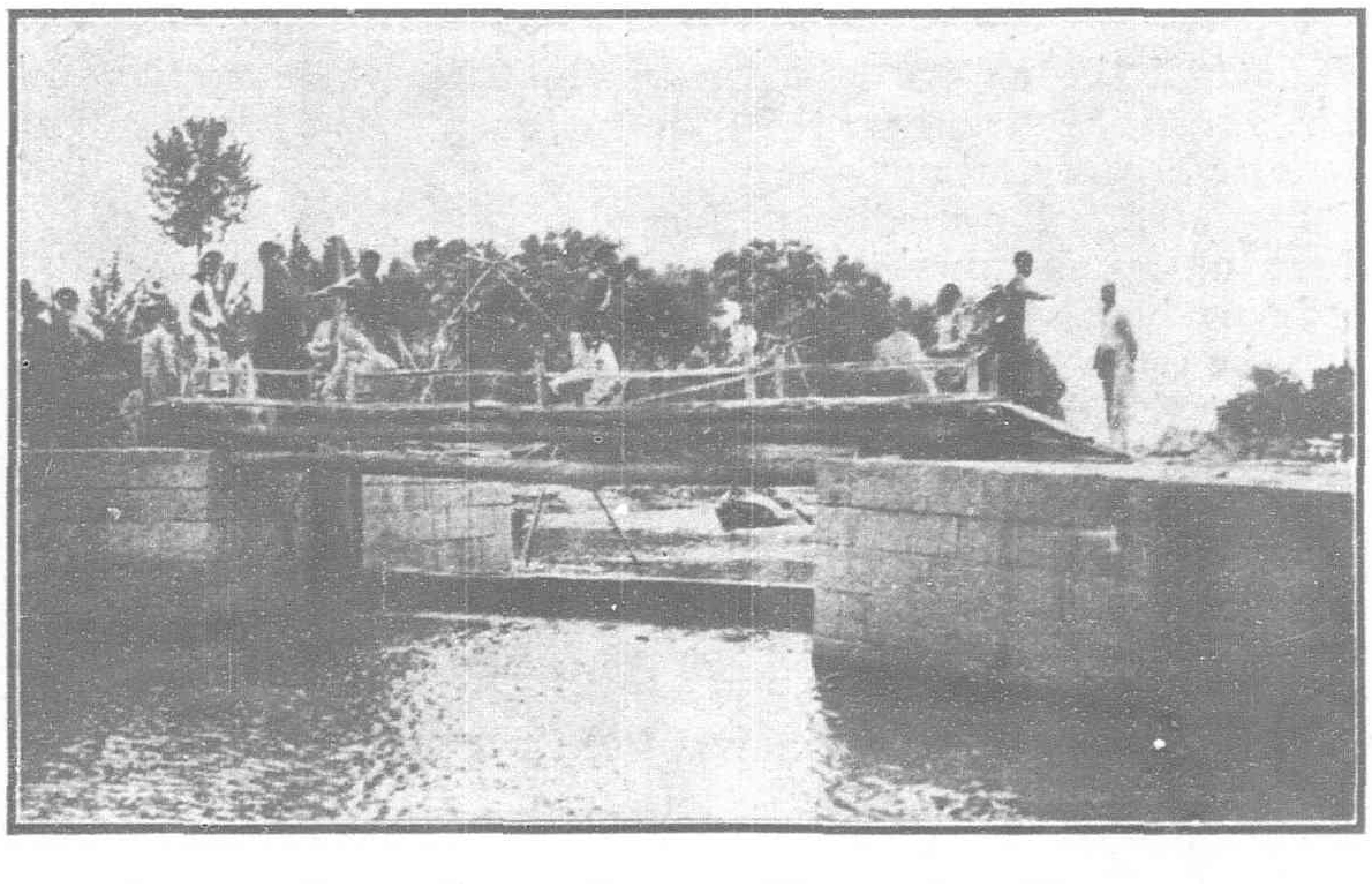
They were built for the purpose of discharging the surplus water in time of excess. There are also a few dozen others that are used only in winter and spring for the sole purpose of irrigating the land on the eastern side of the Canal. When water from the Canal is not needed for irrigation all of them would be tightly sealed up, in spite of the fact that such a procedure is in direct opposition to the safety and general usefulness of the Canal. The Inner Grand Canal has clearly many duties to perform. It must receive and dispose of all the water from the Hwai system, irrigate agricultural lands lying towards the east, provide a satisfactory route for transportation, and, above all, protect the lives and property of all the people on its eastern banks against flood waters from the west, nevertheless it is perfectly true that the very existence of the Inner Grand Canal is conditioned upon the good behavior of the Hwai River and the Hungtse Lake. There is no flood in the Hwai district that does not affect more or less the welfare of the Inner Grand Canal. The damage that has been sustained by the Canal this year is an inevitable result of the general devastation over the Hwai districts.

In considering any scheme for river conservancy of any kind an enquiry into the discharge of the river in question is of fundamental importance: without it no conservancy of any scale can be intelligently discussed. That the Inner Grand Canal is an integral part of the Hwai system is clear from the facts stated above, its conservancy should be handled with due regard for the total discharge of the whole Hwai system. The territory flooded this year lies north of the Hwai and east of the Tientsin-Pukow Railway and has an area of over 16,000 square li. In addition to this there should be considered the district around the Hungtze Lake which is over 8,000 square li in extent and those of the Kao Yu and Pao Ying Lakes (over 4,000 square li). All the water of this vast area must be drained chiefly through the Inner Grand Canal, only excepting a small portion which disappears from the lakes through evaporation and seepage.

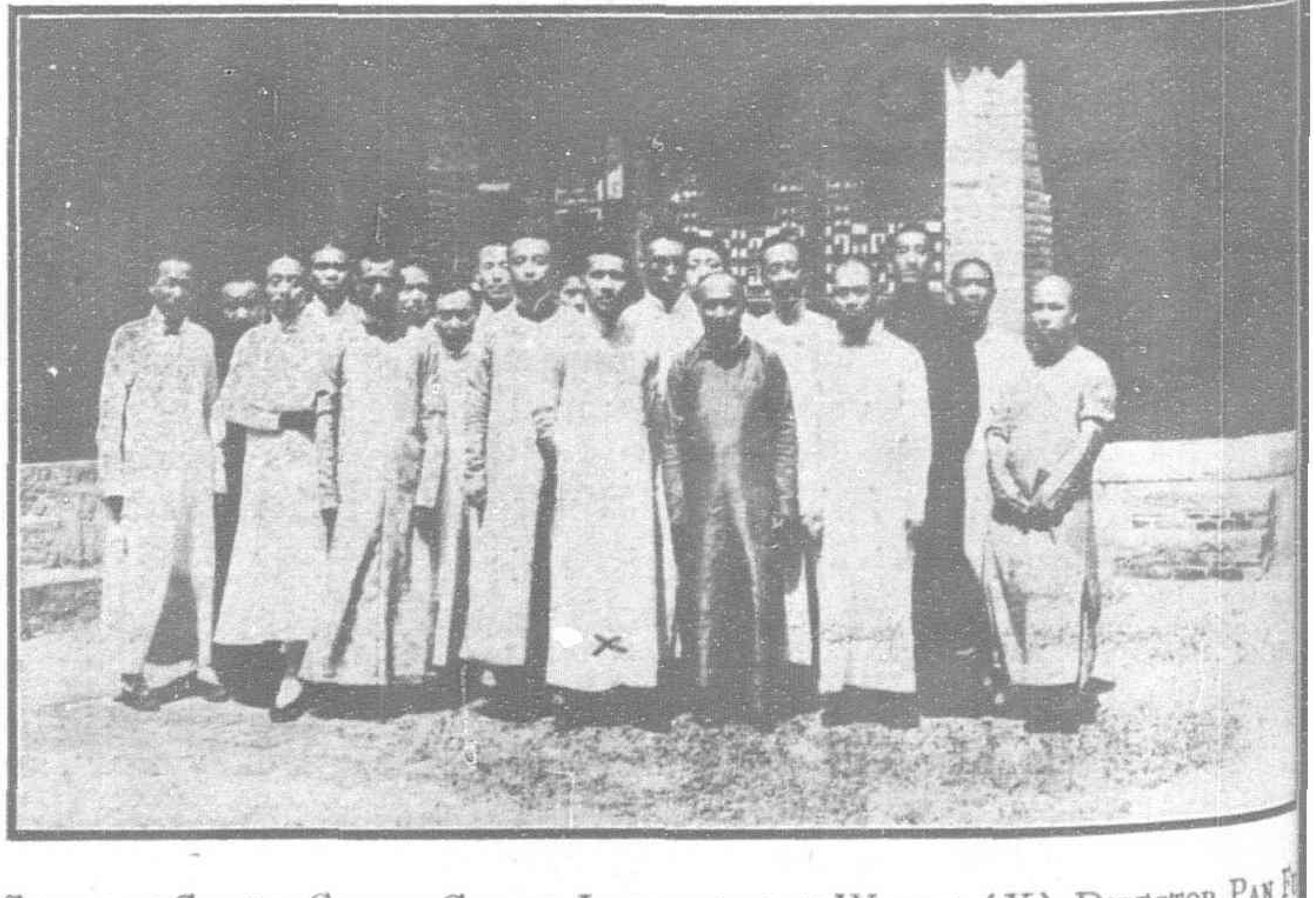
The key to the elimination of floods is to be found in the improvement and regulation of the Hwai system. In view of the financial stringency of the Government, it is hardly advisable to advocate now any wholesale enterprise that involves huge outlay of money. To open an outlet to the sea for the Hwai so as to divert a part of its discharge from the Inner Grand Canal is all that is necessary for the purpose of checking floods, and this is quite within the scope of the Government's financial resources.

In the Book of Shu King, writes Mr. Pan, in concluding his report, we read, "Yu classified the lands of the country in accordance with the qualities of their soils, blazed lines through the woods by following the contours of the mountains, and designated mountains and rivers according to their heights and magnitude." It may be well for us to examine the desirability of doing now similar works to that done by Yu in his time. For it is only when great rivers flow peacefully, when lakes and cisterns are well supplied with water, when the plains and the fields are not subjected to erosion and gullying, and when the springs and streams run clear and sparkling, that the people will be freed from famine and enjoy happiness and prosperity, and that tranquillity will prevail throughout the length and the breadth of the land.

The maintenance of the nation depends upon agriculture, and the foundation of agriculture rests upon the control of the water flow. When water flows peacefully throughout its course we shall receive from it all the benefits which it can confer, but when its course is obstructed and when it is forced into unnatural channels, sooner or later we shall have to bear the evil consequences. It is always dangerous to let one course of water dispute the possession of a single channel with another. When the Yellow River changed its course southward and usurped the outlets of the Hwai and the Sze, the safety of all the adjacent districts was endangered. For generations the Government and the people have endeavored at enormous cost and great sacrifices to fight against the ravages of the Yellow River, to check the



Lock on Grand Canal, Showing Wooden Gate Machinery



Staff of South Grand Canal Improvement Works (X) Director Pan F turbulance of the Ching, and to direct the Yi and the Sze into proper channels, in order to ensure the safe and regular transportation of grain to the North through the Grand Canal. But when the Yellow River changed its course to the North and when the northward shipment of grain through the Grand Canal ceased to be a matter of necessity, it would seem that then it was high time to put the river systems in the Hwai and the Yang districts once more into their proper order. But contrary to what might have been expected, the needed readjustment did not take place and everything was left as it happened to be.

During the long lapse of years the processes of nature were constantly at work, and due to the gradual accumulation of debris in the rivers and in the lakes, floods became more and more frequent, until to-day the situation in the Hwai, Yang, Tsu and Hai districts is not only miserable but literally unbearable. Lands deteriorate in their fertility, waterways become less and less serviceable, roads are no longer kept in repair, poverty reigns supreme, and theft and robbery are everywhere reported. No industry can thrive and everything stands still.

The root of all these evils is found in the neglect of the water courses. If we want to renovate these districts and to re-establish and afford the people means of livelihood and prosperity, the only thing to do is to control the water courses. When the Shu is separated from the Yi and the Yi from the Sze, the Central Grand Canal will be brought into control. When a portion of the Hwai water is sent directly into the sea through Changfu-ho and when its entrance to the Yangtze River is improved, the safety of the Inner Grand Canal will be ensured. These constitute the fundamentals of conservancy work in the Hwai, Yang, Shu and Hai districts. The kind and number of dykes, sluices, or locks that must be built, the depths and the widths of the different channels that should be provided, the amount of excavation or filling that should be made at any given place, and so forth, are questions that require careful and detailed study on the ground by experts and engineers.

Now a word may be said on the matter of expenditure and finance. Much has been said and written on the conservancy of the Hwai, and different estimates have been given by different persons. Figuring on the basis of data furnished by surveyors and engineers and by those who are doing conservancy work on the ground, the total expense of the work proposed will run somewhere between eight and ten million dollars. At first glance the sum seems enormous, but when we think of the population affected, the extent of territory covered, and the economic results to be derived therefrom, we see that after all it is a decided gain both for the Government and for the people.

Let us examine a few facts and figures and see for ourselves from the point of view of economy, whether this expenditure means a sound business investment or a dead loss, ignoring, if so desired, all considerations of benevolence and philanthropy.

According to investigations made in 1914, when flood waters devastated a territory of twenty-one Hsien (districts), crops were destroyed over an area of 7,877,682 mou. Assuming two dollars and a half to be the minimum value of the crop on each mou, the total loss of that year in crops alone was $20,190,000. Adding to this the sum of $900,000 surrendered by the Government in taxes remitted and another sum of $200,000 given by the Government for famine relief, we shall see that the country faced a loss in that year of over twenty-one million dollars, without counting what was spent by the International Famine Relief Commission.

Having gained some idea as to the losses caused by floods in one year we may well figure out the losses in other years over the same territory and due to the same cause. According to information collected and estimates made by foreigners in China, the total losses caused by floods during the last ten years in the Kiangpei districts amount to ninety million dollars. Judging from data in the possession of the Government, this estimate is not far from the truth. Had this sum of ninety million dollars been saved and devoted to the work of conservancy, education, industry and communication in the Kiangpei districts, how different would things now look throughout that section of the country! And as proposed in this paper, the cost of the much needed conservancy work in the Kiangpei districts is at the most ten million dollars, less than one-half the loss incurred in the year 1914 alone. When we remember that this sum is to be devoted to engineering work that will ensure the safety of a vast territory and will enrich both the people and the Government by the profit annually derived from the territory so protected, it becomes doubly clear that it is the soundest of common sense to spend such a sum once and for all, rather than continue to risk periodic and certain losses amounting to twenty-one million dollars in a single year.

For the benefit of the people and the country, I beg to appeal once more to the fathers and elders of the Hwai, Yang, Tsu and Hai districts. All the districts,—Hwai, Yang, Tsu and Hai—are north of the Yangtze; the first two have been known as the lands of wealth and prosperity while the other two have been generally accepted as places of poverty and desolation. As a matter of fact, the lands of Tsu and Hai are not unproductive. They are quite suitable for agriculture and animal husbandry. Along their coast fishery is a most profitable industry. The people of these districts are brave, industrious and used to strenuous work. They have for centuries labored with great vigor and patience against heavy odds and adversity.

In the near future, when the Hai-Lang Railway is connected with the Tientsin-Pukow Line, the Tsu and Hai districts will be bound to thrive and to become an important center of commerce and industry. In preparing for the coming part which the people of Tsu and Hai are destined to play it is urgent for them to set aright their internal affairs, and the most important of these is the control of their waterways. When the land no longer suffers the lamentable visitations of floods, agriculture will re-establish itself and in the course of a few years other allied industries will begin to develop, and then the people and the country will have altogether a different prospect of life and growth. It is my earnest hope that the leading people of the Tsu and the Hai districts will not present difficulties to discourage them, but that they will rise up and prove themselves equal to the task, and so prepare themselves for the bright future which awaits them.

The districts of Hwai and Yang have for centuries been known as the most wealthy and prosperous section of the country, and even to-day by virtue of its great industries in fishery, salt, and agriculture, it holds still a place of rank and distinction. Its people are in general well-to-do and much given to culture, arts and literature, and among them are found scholars of fame, persons of clear foresight and of deep understanding, and others who are well versed in governmental affairs. It is earnestly hoped that in the midst of success and prosperity, they will not neglect the danger which the Hwai may bring upon them at any time. The flood that took place this year in the Hwai region was bad enough, but it might have been ten times worse. May the people of the Hwai and Yang districts prepare themselves for the day when the flood waters of the Hwai are raging with great fury, when the water of the Yangtze forces its way up into the Grand Canal and chokes the very outlet of the Hwai, and when, at the same time, the Yi and the Sze are pouring down their large volumes of water from the north. Such a combination of conditions may be rare, but it is by no means imaginary and it may occur in any year. When I think of the ill fate of those people who once enjoyed life and prosperity on the very land which now forms the bed of the Hungtze Lake, I cannot help but fear the evil consequences from a repetition of the same catastrophe upon the people of the Hwai and the Yang districts. When that day comes no effort will avail. May the leading people of Hwai and Yang realize that it is wholly within their power to put a stop to these direful floods, and that, when the work of conservancy is done, they will have ensured continued happiness and prosperity for themselves and for their posterity during many generations to come.

AMERICAN INTERNATIONAL CORPORATION

To Finance the New Railway and Grand Canal Projects

Consideration of the capacity of the American International Corporation to provide capital, technical skill, and administrative ability for certain great development works, and of its present activity in China, suggests possibilities with reference to China's resources which are of significance to her people and to all mankind.

The tremendous disintegrating effect of the war upon international relations throughout the world excited as early as November, 1915, a reaction upon American men and institutions aimed at a rebuilding of destroyed commerce and its instrumentalities, the establishment of friendly and democratic relations between men of all nations, and the development wherever needed of industry, manufacture, transportation, and finance, to conserve and improve the wealth and the welfare of all people which the war threatened to destroy. The most prominent creature of this impulse—at once selfish and altruistic—was the American International Corporation which was then organized in New York City. The very origin of this Corporation, springing as it did *from the demand of humanity, animated as it was by the conservative* but enterprising and constructive genius of such expert judges of world conditions and proficient leaders of industrial progress as Mr. Frank A. Vanderlip, its future Chairman of the Board of Directors, and Mr. Charles A. Stone, its future President, assured it a life of great service to foreign countries and of great benefit to America.

The capital and special experience and skill which at once fortified its sinews is shown by the fact that it was organized by financiers closely connected with the National City Bank of New York—one of the largest banks in the world, and officers of such other great financial and industrial organizations as Midvale Steel and Ordnance Co., General Electric Co., Great Northern Railway Co., Union Pacific Railway Co., American Telephone and Telegraph Co., W. R. Grace and Co., Stone and Webster, Westinghouse Electric and Manufacturing Co., Standard Oil Co., Carnegie Foundation, and other famous organizations. The very list of its Board of Directors signified an assurance of great deeds and a promise of achievement of its purposes:—

Frank A. Vanderlip, Chairman; J. Odgen Armour, Percy A. Rockefeller, Charles A. Coffin, John D. Ryan, William E. Carey, William L. Saunders, Robert Dollar, James A. Stillman, Pierre S. duPont, Charles A. Stone, Joseph P. Grace, Guy E. Tripp, Robert F. Herrick, Theodore N. Vail, Otto H. Kahn, Robert S. Lovett, Ambrose Monell, Edwin S. Webster, Henry S. Pritchett, Albert H. Wiggin, Beekman Winthrop, William Woodward.

Upon this broad foundation of co-ordinated companies, whose activities were varied but closely related, was built up an efficient organization at home and a great system of special representatives abroad.

During the first year of the activity of the American International Corporation to December 1, 1916, a total of twelve hundred and thirty (1230) propositions were submitted to it for consideration, of which nine hundred and seventeen were declined and the remainder were not then finally disposed of.

The ramification of its service is seen by the countries in which these propositions originated, as stated:

Africa:		
Belgian Congo	8	
Madagascar	1	
South Africa	8	
Other African countries	12	29
Alaska		4
Asia:	7	
China	45	
Other Asiatic countries	21	73
Australia		10
Canada		41
Central America		47
Europe:		
England	14	
France	29	
Italy	39	
Russia	64	
Spain	47	
Other European countries	63	256
Mexico		26
South America:	37	
Argentine	65	
Bolivia	13	
Brazil	80	
Chile	38	
Colombia	42	
Peru	21	
Other So. Am. countries	51	347
United States		326
West Indies	4	
Cuba	50	
Other W. I. Islands	17	71
Total		1230

The beneficial nature of the business considered is shown by the following classification of these propositions:

Agriculture Irrigation, reclamation, timber, fibre, sugar, cattle.	143
Commercial & Industries	13
Financing Loans, public & private insurance.	90
Manufacturing Handling of manufactured articles.	201
Merchandising General commercial propositions.	139
Mining Coal, ore, oil, nitrates, etc.	185
Public Utilities Light, power, water, buildings.	127
Transportation & Communication Railroads, tramways, shipping terminals, telephones.	332
TOTAL	1230

Of the important international transportation projects which were undertaken were the following:

The purchase in December, 1915, on joint account with Messrs. W. R. Grace and Co., of the control of the Pacific Mail Steamship Company. This was of great interest and benefit to China, increasing as it did the means of communication between

China and America, the fleet purchased consisting of three new and comfortable ships—viz., the "Venezuela," the "Colombia," and the "Ecuador,"—and restoring and enlarging American trans-Pacific service.

The acquisition of an interest in the securities of the International Mercantile Marine Co., followed by the placing of Messrs. Vanderlip and Stone on the board of that Corporation, the restoration of its business from a receivership, the stimulation and increase of shipping facilities on the Altantic.

Acquisition of an interest in the United Fruit Company, which has done for many years a large and growing business in Central and South America and has developed a very complete organization, not only for growing and distributing products but for transporting these products both by land and water.

Purchase of the entire property of the New York Shipbuilding Company at Camden, N. J. In addition to the construction of battleships for the United States Government, the building of merchant ships for the International Mercantile Marine and other shipping concerns interested with the American International Corporation will increase the world's tonnage materially.

Organization of the American International Terminals Corporation for the study of terminal problems in New York and ultimately for developing terminals, port works, and harbor facilities in New York and other ports.

The foregoing enterprises indicate the Gargantuan porportions of this giant of commerce, but the enumeration of various business undertaken during the first year tending to serve the public by enlargement of ocean transportation, development of export and import trade, placing of American materials and manufactures abroad where necessity demands, the employment of American capital and skill in constructive foreign works, could be extended beyond the space allowed this article. Briefly, some others of the most significant undertakings are:

The acquisition of the entire stock of the Allied Machinery Co. of America, which conducts an export business in machine tools, with its own offices in France, Italy, Switzerland and Russia.

The financing and construction of water works and sewerage systems in Uruguay.

The foundation of the Latin-American Corporation for development of public works and railroads in South America, in charge of Mr. W. S. Kies, Vice-President of the American International Corporation, who has been intimately connected with the establishment of branches of the National City Bank in South America.

The sending of expeditions upon special missions to Argentine, Bolivia, Brazil, Chile, Colombia, Costa Rica, Guatemala, Honduras, Nicaragua, Paraguay, Salvador, and Uruguay.

The establishment of an office in Petrograd and the opening of business with the Russian Government, involving railway construction and other important undertakings.

The acquisition of Carter, Macy & Co., an old established firm importing and wholesaling teas from China, Japan, India and Ceylon.

The American International Corporation, as a world's institution, has great potential value for China and the Far East generally. Among its Vice-Presidents is Mr. Willard Straight, whose knowledge of and sympathy with Chinese interests was acquired during years of service here in the consular department of the United States and afterward as the representative of the American Group of Bankers doing business in China. He is devoting particular attention to the Far Eastern business of the Corporation. Already a great contract for financing the building of railroads in China has been entered into whereby possibly twenty-six hundred (2,600) miles of railroad may be constructed with money provided by the American International Corporation. Moreover, contracts for the dredging and improving of the Grand Canal and rescuing and conserving large areas of country which are now occasionally devastated by floods, have been taken by the Corporation. When carried out, this work will be of enormous humanitarian benefit, preventing as it will the famine and loss of human life which usually accompany such floods, and of positive utility to commerce as a convenient and cheap means of transportation.

The Corporation has an organization in Peking with Mr. Ernest T. Gregory as Representative. Moreover, it has formed, in co-operation with Messrs. Siems & Carey of St. Paul, two companies to properly carry on business in China, viz., The China Corporation and the Siems-Carey Railway & Canal Company, which latter company will do the construction work on both the railways and the Canal. The Corporation also provides a lawyer, skilled in general practice and international law—Mr. Warren R. Austin—as legal adviser to these several allied corporations in China.

The work on the various railroads under the contract is already commenced with several survey parties in the field under American engineers, and by late summer the shriek of the construction engine should be awakening the dragon of a rich interior to the strange sight of the steel highway crawling up his peaceful valleys and boring through his slumbering hills.

Its object is uplifting, benefiting industry and commerce—not politics. The American International Corporation is the kind of "good giant" China needs.

CHINA'S NEW IRON MINE IN HUPEH

According to Chinese papers, a new iron mine was discovered at a place called Pengchihchiao near Tayeh, investigation of which was started under the direction of Mr. Chang Chien, the ex-Minister of Agriculture and Commerce. The result of the investigation having established the fact that the mine has a better prospect than the Tayeh Mines, Mr. Chang in conjunction with Tang Show-chien, Sun Pao-chi, Ku Chung-hsiu, Tang Shao-yi, Chen Chin-tao, and several others is working to organize a company for developing the mine. The scheme is approved by the President, the Vice-President and Premier.

The concern, which will be designated as the Chi-Hua Kungssu, will have a capital of six million dollars, one third of which will be put up by the promoters, and the balance will be subscribed for by the Chinese in general. No foreigner will be allowed to be a shareholder, nor shall any money from a foreign source be introduced in any shape whatever in the concern. A smeltery will be established in the vicinity of the mine, where iron and steel will be manufactured.

The mine is said to be situated 45 li from Changchia Lake, which having an outlet to the Yangtze will facilitate the transportation of the Company's product. As regards the coal required at the smeltery, negotiations have been concluded with the Pingsiang collieries for the supply of their coke. Besides, the Company has effected the purchase of a coal mine at Wangchiapao near the mine at the cost of $4,700, which will also be used to advantage. Preparations proceeding satisfactorily, the mine will be in full working order before long to rival the Tayeh Mines.

CHINA'S ORGANS OF COMMUNICATION

According to reports in the Japanese Press of a speech by Minister Hsu Shih-ying, at present there are in China 10,054 li of Government railways in running order. Lines under construction total in mileage 5,267 li, whilst those decided upon to be built measure 10,447 li. Private railways aggregate 1,138 li in length.

There are 710 telegraph offices in the country, and the total length of telegraph wire comes up to 127,555 li. The number of post offices totals 1,567, and postal roads measure 492,600 li in length all told.

SOME FORCES IN MODERN CHINA

[By Timothy Richard.*]

By the forces in Modern China I mean those that have been at work during the last decades, and which reveal themselves when I ask the following questions:

1. What made China alter her ancient anti-foreign policy of monopolising the rich resources of the country, and of locking all the gates of China against foreign intercourse? The superiority of Western civilisation, of which more will be said later on.

2. What made the Chinese Government sue for peace in 1895 at the hands of the nation of dwarfs whom they had been in the habit of despising for a millennium? The superiority of the new Japanese civilisation, which had been adapted from the West.

3. What revealed to the statesmen and scholars of China the secret of the marvellous prosperity of the nations of Europe, Asia, Africa, Australia, and America? The work of the Christian Literature Society, which spread far and wide a knowledge of the history, science, industries, trade, education, and religion of these nations. This was followed up by Japanese propaganda, and by the work of the native Press.

4. What changed Chinese public opinion? The people had been taught for millenniums that they alone were enlightened and civilised, whilst all other people and nations were barbarians. Many causes were at work. Christian missions multiplied rapidly in every province; these denounced the opium habit and the cruelty of crippling their women by binding their feet; they opened dispensaries and hospitals for the healing of the sick. Unselfish philanthropy was shown by foreigners during the terrible times of the periodical famines. They not only contributed millions of dollars, but, undeterred by the danger of catching the deadly famine fever, they went into the poorest regions of the interior and relieved the sufferers; many of them died of the fever. The missions established schools and colleges everywhere, and in these, besides Christianity, they taught to hundreds of thousands of the young Chinese the various sources of the wealth and prosperity of foreign nations. At length the mouths of the anti-foreigners and anti-Christians were closed, and they were compelled to admit that, after all, these foreigners were not their enemies, but their very best friends, doing what they themselves could not possibly accomplish. The Chinese learned that the prosperity of Japan began with the enlightened policy adopted by them in 1868, and had increased by leaps and bounds ever since. The three foundation-stones of her prosperity were described by Prince Ito when he said (1) That no nation could be considered prosperous unless it did something to improve the material condition of its people. (2) That no material prosperity could last long unless it had a moral backbone. (3) That the strongest backbone existed where there was a religious sanction behind it.

By this time China had learned that God had not given to the Manchus, or to any other race, a monopoly over the resources of any part of the earth. The various countries differ as to the amount and variety of the wealth of their natural productions, but by international trade the surplus of one country should supply the deficiencies of others; this has frequently been done to the great advantage of all. This was the argument which justified the West in compelling China and Japan to sign trade treaties with outside nations. Foreign Consuls, Commissioners of Customs, and merchants all preached this.

5. Gradually it became known to the most intelligent that China need not suffer from periodic famines if she adopted Western science, industries, and trade, and that she could easily increase her income to a million pounds a day! The result was the formation of a Reform Society among the Hanlins, the leading scholars of the Empire, and they seriously asked what was the reason why China was engaged in a foreign war on an average once every ten years? The answer given was along these lines. God, in these latter days, by means of steam, electricity, etc., was bringing nations together for the good of all. By her frequent disregard of treaty rights, China was not only irritating foreign nations, but opposing God in His mighty Providence. When this explanation was given some missionaries feared there might be another outburst of anti-Christian feeling, and anxiously awaited the result of this statement. Within a few weeks Li Hung-chang and a member of the Grand Council in Peking wrote to say that they were convinced that this was the true explanation. Thus was a new force made manifest among the statesmen of China.

6. What was the cause of the rise of Republicanism in China? In 1870, there were few schools or colleges in the country, as the tendency of British Missionary Societies was to devote almost all their time to evangelistic work. This was the period of the rapid rise of the China Inland Mission. But in the eighties the American Methodist Episcopal Mission started three so-called Universities in China—one in Peking, one in Nanking, and one in Foochow. Later on, the American Protestant Episcopal Mission founded the St. John's University in Shanghai; this eclipsed the others under the very able management of Dr. Hawks Pott. Preparatory schools and colleges sprang up in connection with these in every province with great rapidity, so that now you can hardly put your finger on a place of any importance in China where these schools and colleges are not to be found. English is taught in these institutions, and naturally American text-books are used everywhere. These text-books are strongly pro-American, and they refer to the Republican form of government as the latest and best form of political evolution. Thus the seed of Republicanism has been sown far and wide in China. Add to this that Dr. Sun Yat-sen was born in the Hawaiian Islands under American rule, and studied medicine under Dr. Kerr, a brilliant American medical missionary in Canton. The result was that the younger generation in China was largely prejudiced in favour of Republicanism, and when the Republican flag was raised a large body of Chinese eagerly hailed it, and were followed by the masses, many of whom hardly knew what the Revolution meant. And so the change from a monarchy to a republic was carried out with very little bloodshed, except in one or two provinces where racial prejudices were stirred up.

7. What was Japan doing all this time? She had watched the circulation of the publications of the Christian Literature Society and their great effect on the minds of the Chinese, and she formed a Japanese Literature Society which professed to give in a series of text-books, which could be mastered in three years or even three months, the sources of Japan's rapid prosperity. This was not the point of view of the Christian Literature Society. The Japanese Society taught that it was on account of her adaptation of Western civilisation that she not only proved herself superior to the ancient Chinese civilisation, but was even able to beat the armies of the powerful Russian Empire.

Further, the Japanese bought the leading newspapers which had sprung up in China during the last twenty-five years, and used them as their instruments. The result of this propaganda was that thousands of Chinese students, both men and women, went over to study in the universities of Japan. In one university alone there were 700 Chinese students. These returned to China filled with the idea of following in the steps of Japan. Japanese missions visited Siam, India, and Persia, suggesting that the alliance proposed by Prince Konoye, the President of the Japanese Senate, who had completed his education of blood and iron in Germany, should form a Pan-Asiatic League with Japan at the head of it, to oppose the further aggression of the West in Asia. Students from all these countries went to study in Japan.

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* In the December number of the "Contemporary Review."

The swelled heads and jingo party in Japan thought they were masters of the situation in the Far East, and when Yuan Shih-kai lost his head and ordered the provinces to send telegrams—dictated by him—urging him to become Emperor of China, they were very clamant about dictating terms to China which would practically make her a dependency of Japan. Fortunately, the Premier, Count Okuma, was a wise man, and would not press the obnoxious demands of the jingo party.

Now Count Okuma has resigned and Terauchi is Premier. He succeeded Prince Ito as Governor-General of Korea. It is worthy of note that, instead of appointing a civil officer as successor to Prince Ito, a military general was appointed, in order to overawe the Koreans. Terauchi, however, has done splendid work in improving the material condition of Korea; the successive Government Reports which I have seen amply demonstrate this. But the pacification of a newly conquered and rebellious country is not accomplished in a day. Charges were made that the Japanese in Korea treated the natives with great disrespect and injustice, and consequently prevented them from settling down peacefully. The Japanese Government was charged by several able Americans, well acquainted with the situation in Korea, with a very high-handed policy there. The Government had accused over one hundred Koreans, mostly Christians, with treasonable designs, and had imprisoned them on altogether inadequate evidence. As the result of the representations of the Americans, the greater number of the prisoners were liberated. Not only so, but the Japanese Government lately sent a special Commissioner to Korea to investigate the whole matter. This shows that, while some Japanese are hot-headed, the experienced statemen in Tokio have checked the military tendency of those in power in Korea, and this augurs well for the Far East.

8. What was Yuan Shih-kai doing to restore order after the Revolution? He believed that military power alone could do this, just as Prince Konoye had preached to the Chinese Government some years before. German officers were employed by him, as had been done by Chang Chih-tung before him, to drill his troops, and Krupp guns filled the arsenals of China. There was a striking instance of his policy and of German influence over him in Shanghai, just after the beginning of the European war. The famous reformer, Kang Yeu-wei, who had been an exile from his country for seventeen years, promised to give an address on Peace at a meeting of the Saturday Club, an American institution where foreign business men and leading Chinese meet to hear addresses on live questions. There was an unusually large gathering to hear him, and it was noticeable that Chinese military officers in and from around Shanghai were there in numbers. Kang Yeu-wei spoke on peace for the world. After he had finished his striking address, by some mysterious means an Austrian military officer rose to address the Club, and his speech had been carefully prepared to show that only might could produce peace; that every effort of the peace societies had failed, and that in spite of their efforts there was then being waged the greatest war in the history of the world. Meanwhile, Yuan Shih-kai did nothing to improve the education of the country, but diverted all the revenues to increase his military forces. The result is a lack of well-informed men to guide China now.

9. What about China herself to-day? The new President, Li Yuan-hung, has a fine record. At the beginning of the Revolution of 1911 he became the leader in Central China, not from choice, but because he was compelled by his soldiers. He managed to depose the Viceroy at Wuchang and the manager of the arsenal, without shedding a drop of blood. During all the turmoil which followed in Central China, and later when he became Vice-President of the Republic in Peking, his record was that of a mild and clean-handed official, who commanded the respect of the nation.

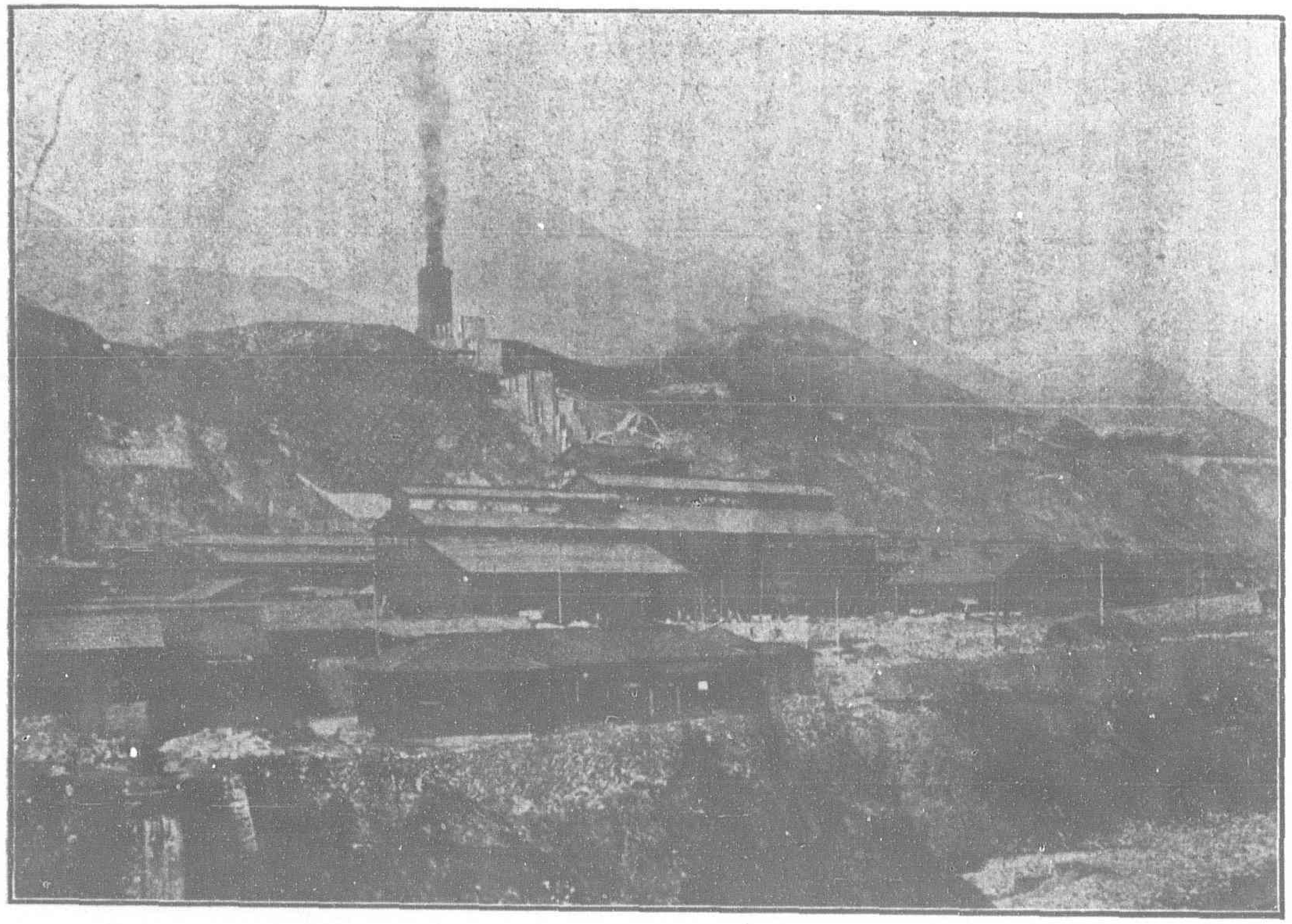
After the President, the most important personalities in China are: (1) Dr. Sun Yat-sen, the first chosen President, who showed much wisdom in immediately resigning the position to Yuan Shih-kai, an experienced statesman. (2) Ex-Viceroy Tsen, a native of the province of Kwangsi; an honest man who showed great ability as Governor of Shansi after the Boxer rising, and later as Viceroy of Szechuen, which he soon reduced to perfect peace; still later as Viceroy of Kwangtung, where he suppressed a stubborn rebellion which the Manchu Government had failed to quell. During the Presidency of Yuan Shih-kai he did not approve of the lavish expenditure of money by the Government, and distrusted both Yuan and his policy; he consequently joined the Cantonese party, which was strongly anti-Yuan, and he was the biggest thorn in the Presidency's side. (3) After Tsen comes Liang Chih-chao, who exposed the matter of the forged telegrams previously referred to, and showed they had all been dictated by Yuan himself in Peking. After this Liang left Peking, for his life, like the lives of so many of those who opposed Yuan, was not safe. He went to Canton in Kwangtung, his native province. He wields the most powerful pen in China, while Tsen wields the most powerful sword. At one time Liang believed in the Christian religion as the best hope for China, but during his residence in Japan he came under the influence of a Japanese statesman named Kato, who made a great stir by saying that Christianity was not suitable for Japan as it weakened patriotism, placing the welfare of the world before that of their own country. (4) In addition to these we might mention Chang Chien, one of the greatest scholars in the country, a true patriot who established schools and colleges at his own expense, and started industries to compete with Japan, who flooded the country with her goods. (5) Ting, ex-Governor of Shansi, who most effectually put down the culture of and trade in opium throughout the province. He, like Chang Chien, is from the province of Kiangsu, and they are great friends. He had several times been invited by Yuan to join him in pacifying the country, but he did not believe in Yuan or his policy, and has retired into private life in Shanghai since the beginning of the Revolution.

Besides these *good* men who desire to benefit China, there are those who during the Revolution feathered their nests well, and have returned from Japan where they have been hiding. Happily two of the worst are now dead. Whilst this group is maturing its plans with regard to the new President, a far more formidable combination is being formed in the north under the leadership of General Chang Hsun. From the beginning of Yuan's presidency this man ranged himself on the side of the Manchus, and with his soldiers sat astride the Tientsin and Pukow railway, defying Yuan to oust him from that position. Now it is reported that he and a dozen military generals in the various provinces are planning to form a military dictatorship under the young Manchu ex-Emperor. As these generals had their hands on the provincial purse-strings, it was difficult for the Government to obtain money enough for the purposes of keeping the country in order. In this dilemma it is rumoured that the new Minister of Finance has turned to Japan and borrowed $8,000,000, promising her good interest as well as fresh mining concessions.

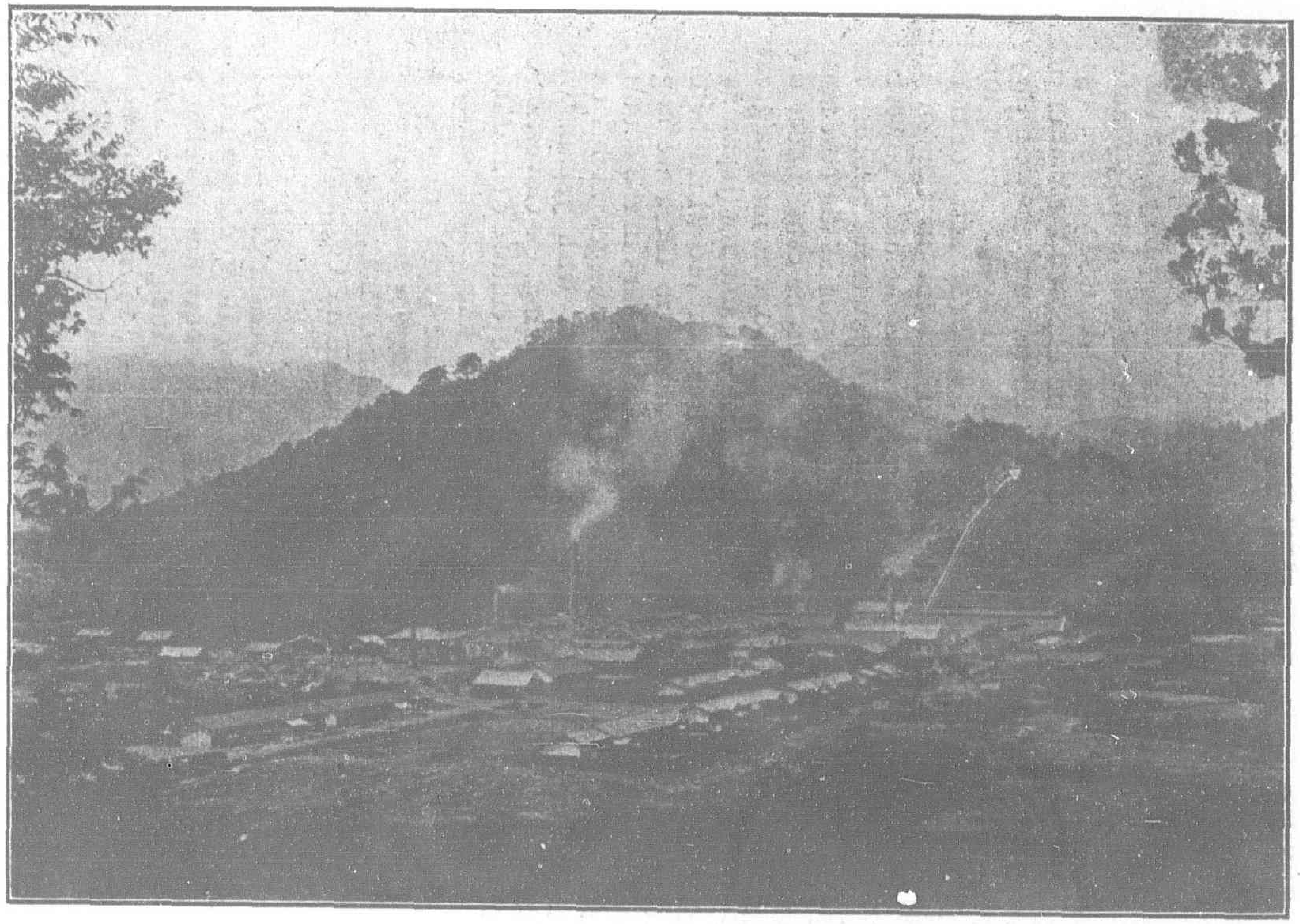
The new hope that is dawning on the world to-day, that of a Central Government for the world, with Home Rule for each country, will supply the two great needs of China as well as other nations. These are (1) absolute defence against foreign aggression; and (2) freedom of travel and trade all over the world without national or racial restriction. Powerful forces are at work in Japan, in Korea, and in northern and southern China. Poor China has been rapidly going downhill from bad to worse, and only a few of her sons have had a clear vision of her glorious possibilities.

Still, with Li Yuan-hung as President; with Feng Kuo-chang, an able and experienced general, as Vice-President; with Chen Chin-tao, an honest, well-trained man, as Minister of Finance; with Wu Ting-fang, a man of peace, as Minister of Foreign Affairs, and an ever-increasing, large background of Chinese students who study in Europe and America to guide the authorities and public opinion, there is hope of a great tide of improvement in all departments of life.

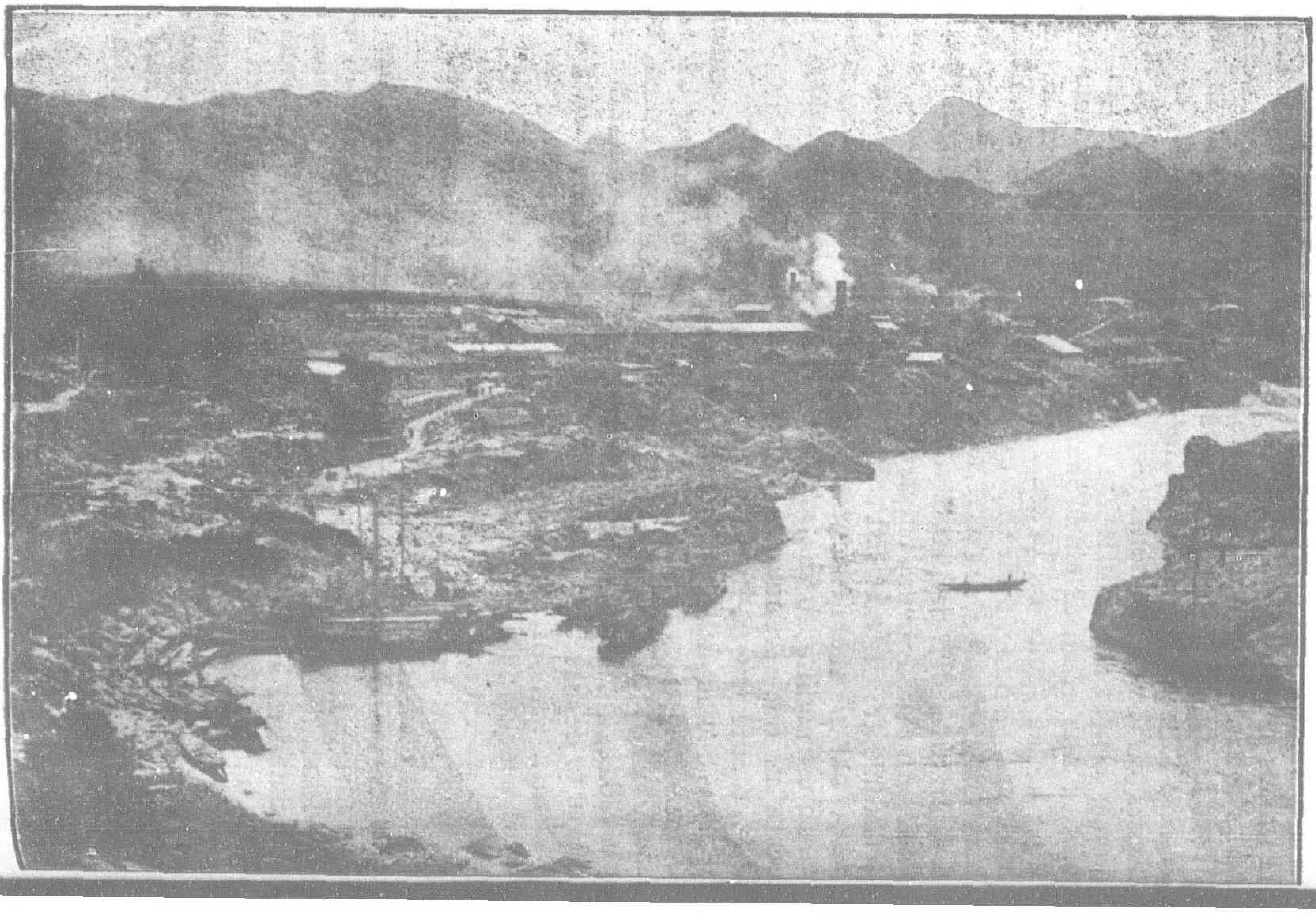
But China needs peaceful times to put her house in order, and must guard herself against the fatal microbe of mere national self-interest, which is the great plague of the modern world, instead of goodwill towards her neighbours also, which principle is in harmony with God's will throughout all nature, showering blessings on all nations and races alike. I do not believe that China, the United States, and other neutral nations, in view of the horrors of this war, will continue to ask, Am I my brother's keeper? and do nothing to stop war, but will soon devise some concerted action which will enforce permanent peace for all nations.

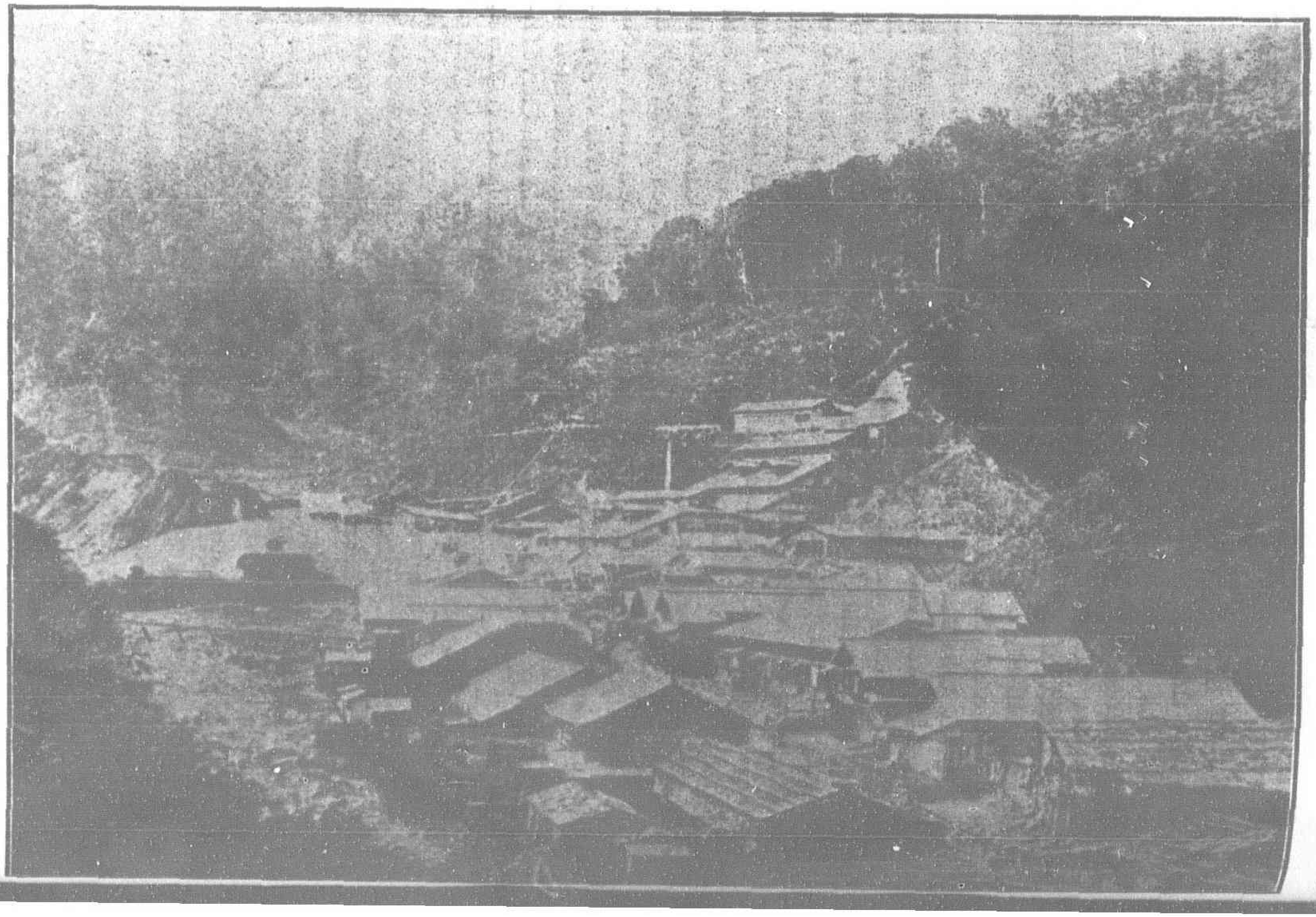


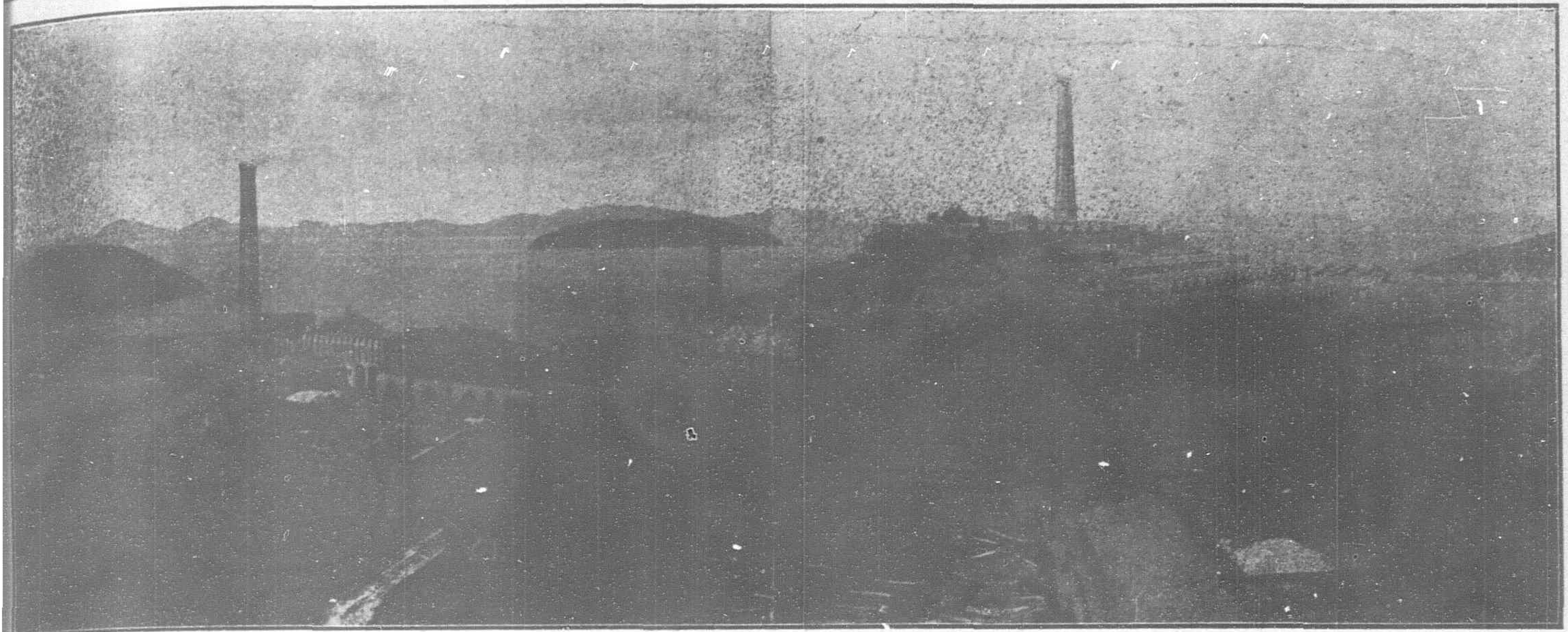
GENERAL VIEW OF THE ASHIO SMELTER AT NIKKO COPPER MINES



NIKKO COPPER WORKS, SHOWING GENERAL ARRANGEMENT OF PLANT







Blast Furnace at Sirakijima Smelting Works of the Sumitomo Company

THE MINING INDUSTRY OF JAPAN

Its Present Condition and Future Prospects

[By Prof. Toshio Watanabe, of the Imperial University of Kyoto]

The principal mineral products of Japan are coal, petroleum, sulphur, gold, silver, copper and iron. No other country in the world, except America, produces so many varieties of mineral wealth. Britain, with her numerous colonies, does not produce suphur. Germany is very scantily supplied with gold, copper, petroleum and sulphur. The rarest mineral products of the world, tungsten, molybdenum and even monzanite are found in Japan. The store of coal and iron in Japan, however, is of a very meagre description compared with that of other Powers of the world.

The coal fields of Kyushu being so conveniently situated, in times of peace, coal is produced to the largest value and quantity among Japanese minerals, and extensively exported abroad. The total amount of mineral worked and refined in Japan proper, Chosen and Taiwan is as follows according to the 1914 and 1915 reports, that for 1916 being deduced from the statistics of the principal mines for the first nine months of the year:—

1914	Yen 180,000,000
1915	Yen 220,000,000
1916	Yen 288,000,000

It is rather difficult to obtain a correct estimate of their values, but judged from their relative prices in 1915 and 1916, the mineral products of Japan may be roughly appraised as follow:—Gold, Y. 21,000,000; silver, Y. 7,000,000; copper, Y. 100,000,000; iron Y. 55,000,000; coal, Y. 80,000,000; petroleum, Y. 1,600,000; and sulphur, Y. 7,000,000.

The temporary paralysis of the mining trade caused by the disruption of August, 1914, was soon followed by a heavy demand for the requisites of war, copper, zinc and antimony, which brought copper an increase in value of Y. 15,000,000 in the following year, although the increase in output was quite insignificant.

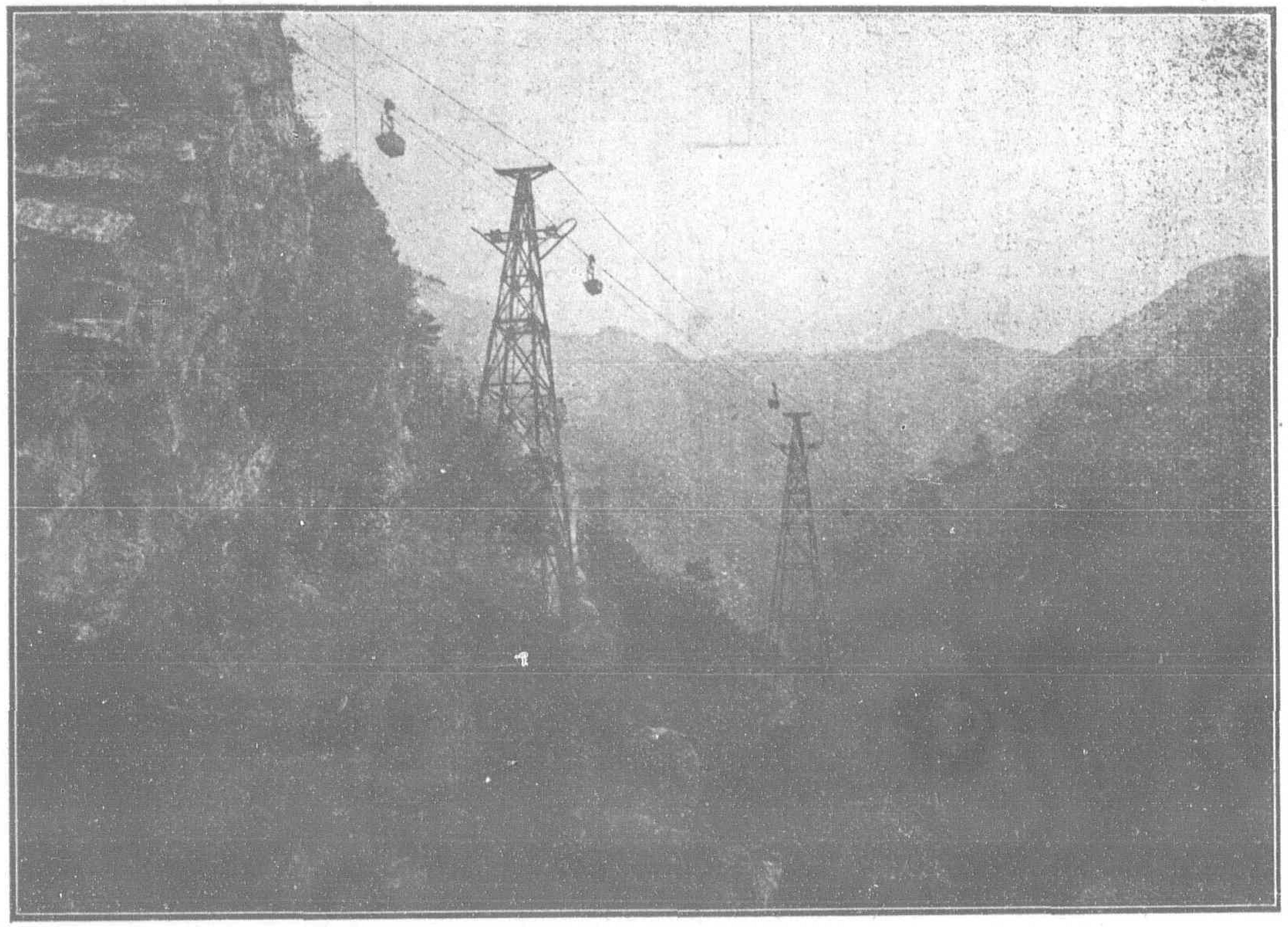
The manufactories of the Osaka Zinc Company and the dry process factory managed by the Mitsuis were still in an experimentary stage at the time the war broke out, but the new conditions created by the catastrophe enabled these Japanese works not only to complete their equipments, but to extend their plants beyond the furthest limits they had originally contemplated. The required ore is imported from Australia, India, Siberia and China, and in 1915 zinc to the value of about Y. 4,000,000 was exported.

A high degree of efficiency had been developed in Japan in the refining of antimony, but the work had remained comparatively inactive owing to the scarcity of materials to work upon. Here again the required ore was imported from abroad and in 1915 some Y. 9,000,000 worth of antimony was produced at Osaka.

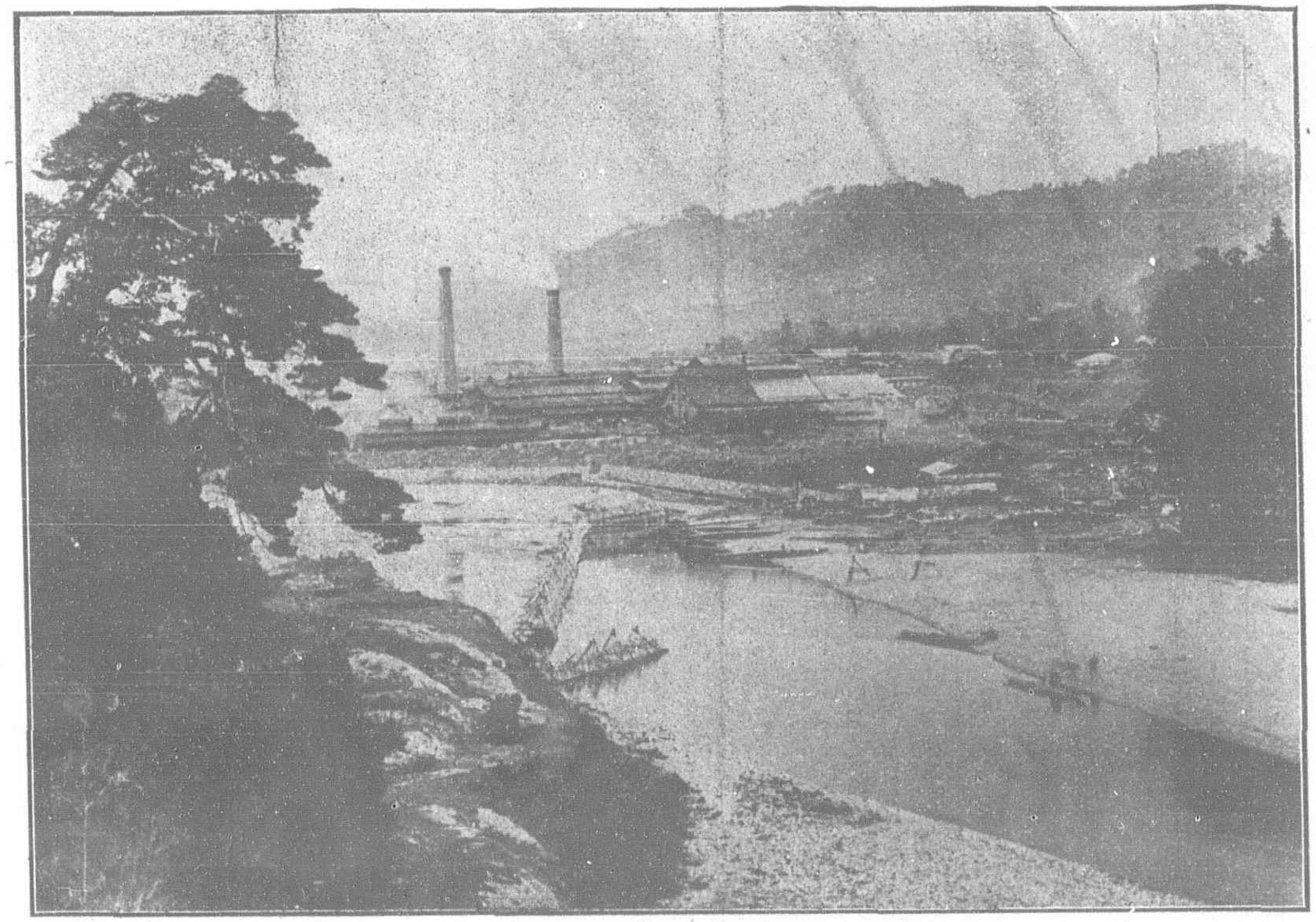
Iron is another mineral, of which the increase in production was noticeable, owing chiefly to the extension of the iron foundries. The Wanishi, the Kuriki and the San-in Iron Foundries all reported increased outputs. The production of gold in 1915 increased by 15 per cent over that of the preceding year. Tungsten also showed a remarkable increase.

In 1916, the extensions to the former plants were nearly completed, and the output of copper increased by 20 per cent, while its market value rose 55 percent over that of the preceding year. Iron increased both in output and in value. Zinc refineries sprang up at many places. The general expansion of the manufacturing industries and the decrease of the stock sent up the price of coal to an extraordinary point, hence the unprecedented increase in the total value of the mineral products of the country. At ordinary times, Japan imported from fifty million to sixty million yen more owing to her heavy requirements of iron, but in 1915 she exported Y. 7,000,000 more than she imported.

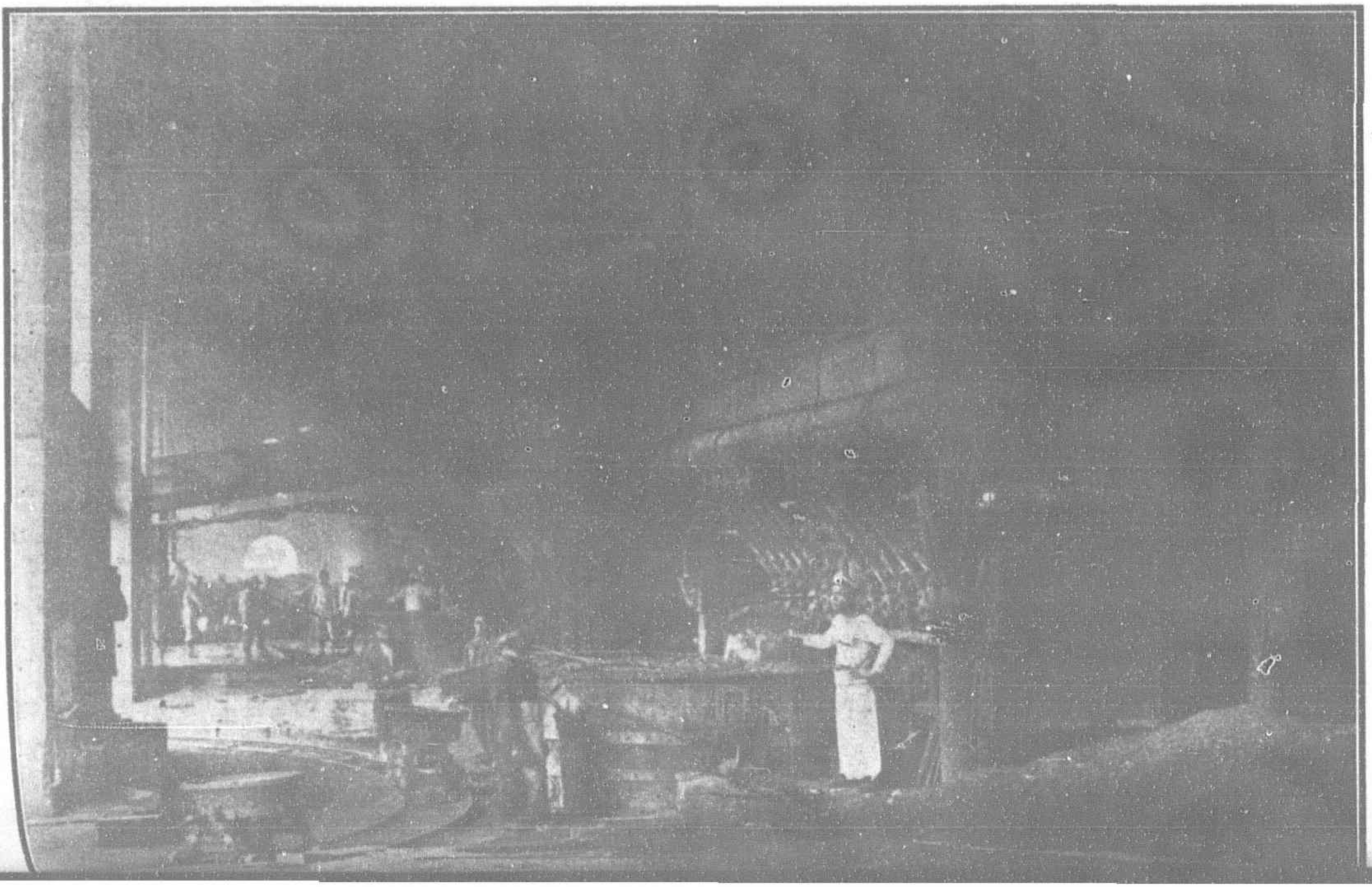
This tendency must have been still more marked in 1916, though, it must be remarked, this is essentially due to the decrease of imported iron. The most noteworthy facts in the mining trade of 1916 were that Japan imported large quantities of raw materials from Australia, Siberia, China and India and exported equally large quantities of finished articles—zinc, copper and steel tubes and copper wire; that numerous refineries were established at Chikuzen and at the provinces bordering on the Inland Sea, and that mining works were started in China under the joint management of Chinese and Japanese.

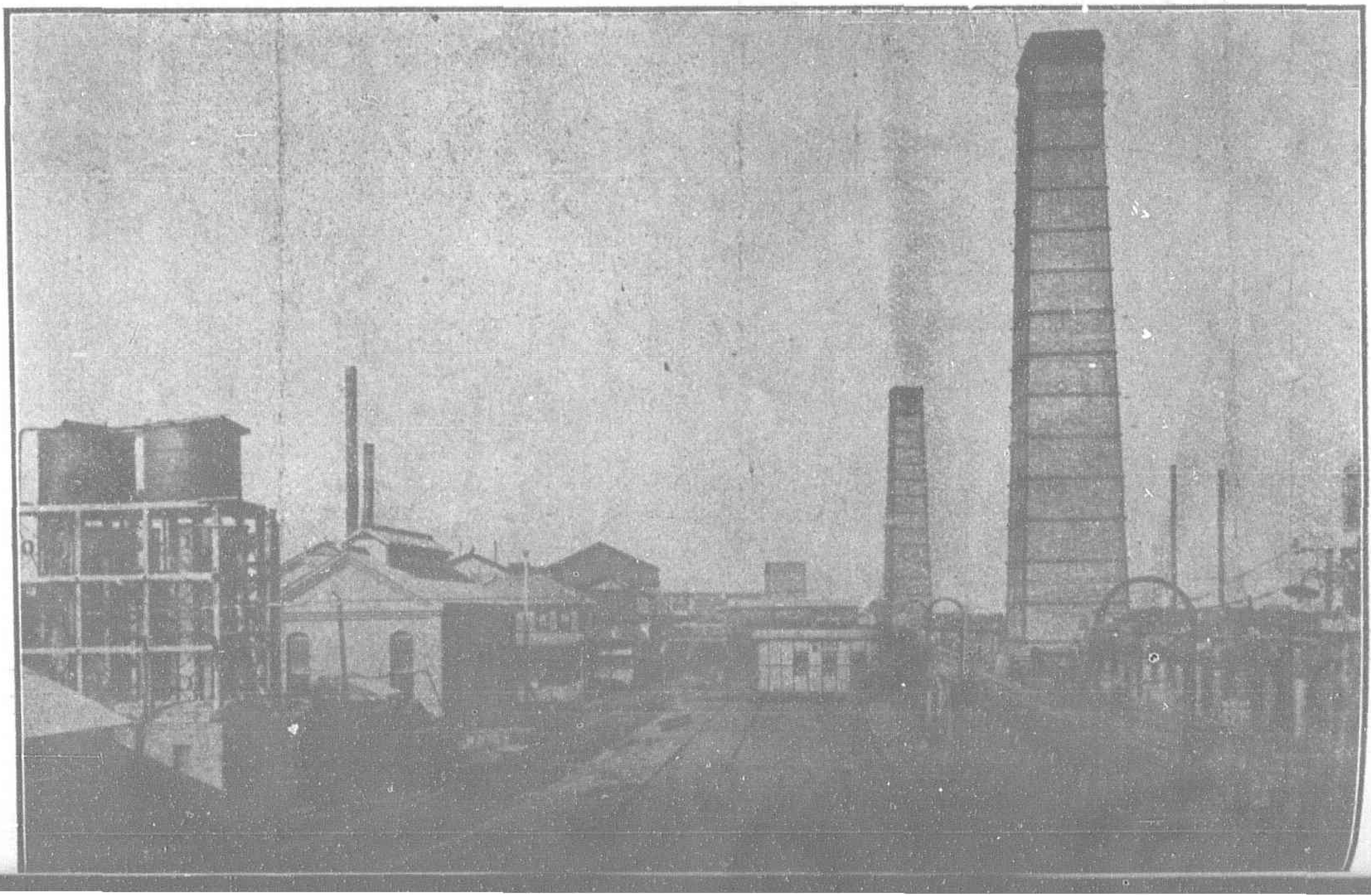


Aerial Tramway at the Besshi Copper Mine

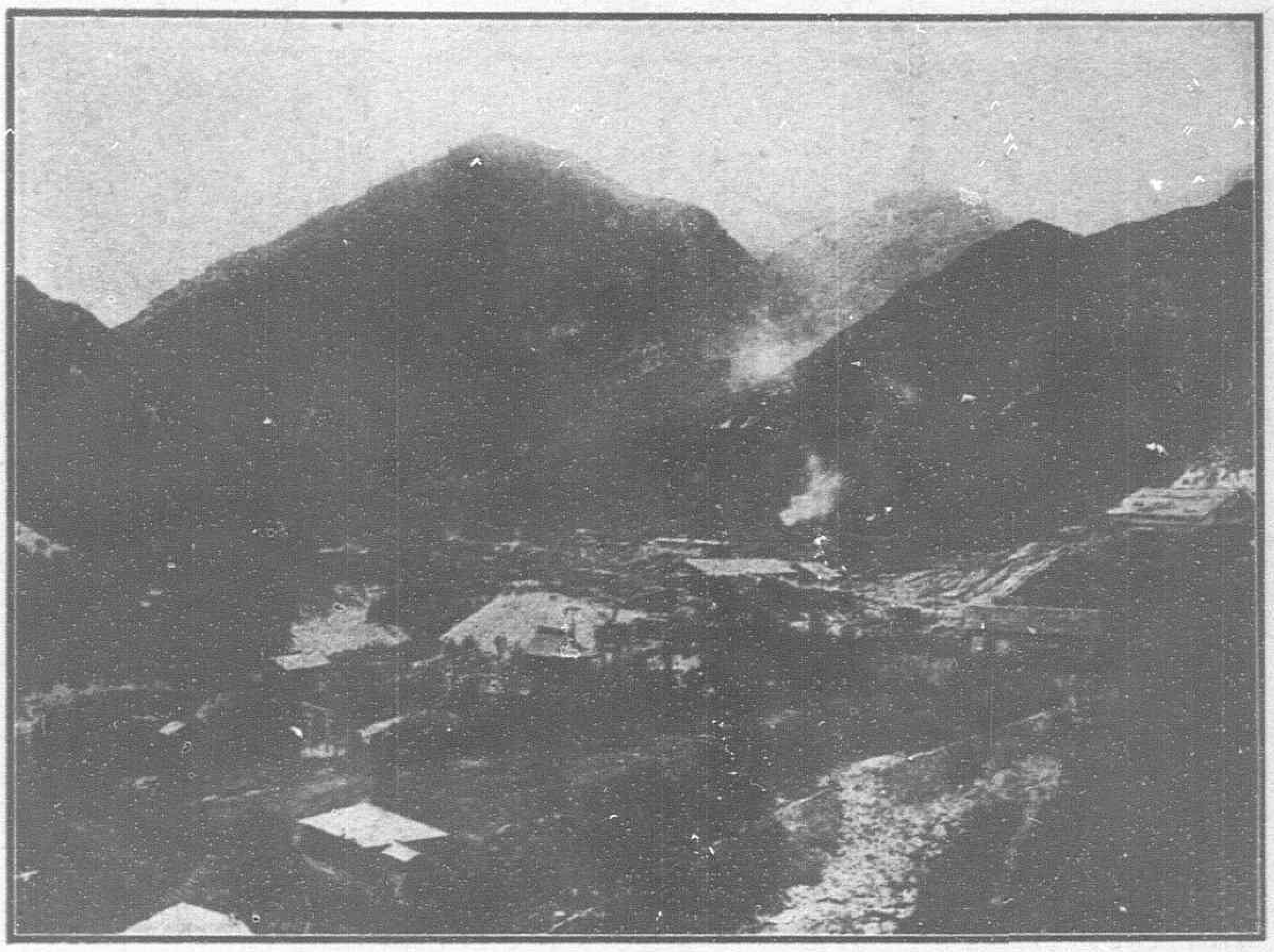


General View of the Ani Copper Mines





GENERAL VIEW OF TSUDO, SHOWING ASHIO MINES NEAR NIKKO



THE GINZADAIRA AT THE ASHIO COPPER MINES

Japan's own Supply of Iron

The meagreness of Japan's own iron supplies was one of her industrial problems that attracted the keenest attention of all classes of her people during last year. The work of investigation connected with this subject was first started by the union of industrial interests in Osaka, and this was followed by the presentation to the Government of a joint memorial by companies representing iron, steel, arms and shipbuilding interests. The debates in the Diet on the same question were carried on with zeal and earnestness. The result was the organization of the Committee on Investigations into Iron-making, whose labour has since so far advanced that the projects framed by them for the encouragement of iron industry are to be submitted to the present session of the Diet.

This growing agitation in Japan over the question how to procure iron by her own hands, was brought about, in the first place, by the object lessons given by the present war and the fear that Japan may be reduced to a serious stress, through her lack of iron, in the event of her having to wage another war; in the second place by the visible scarcity and appreciation in value of the stock in hand, which placed her shipbuilders and arms and machine makers in a peculiarly distressing situation: and, in the third place, by the clamours of those politicians who were in favor of abolishing the governmental management of the principal iron-works, which they described as being unsatisfactory.

Fuel was added to the fire by the introduction into the Diet of the bill for the third term extension of the Government Iron Works. Japan's present demand for iron reaches 1,350,000 tons, of which she is able to supply about one-third from her own mines. By the time the third term extension is completed, that is 1921, the Government Iron Works will be producing nearly 650,000 tons, but the demand for iron will be increasing apace, so that the Works may not be able to supply more than half the country's need of the hard metal. **China is of course the land whence Japan will have to draw her supply of iron ore**, and if Japan is going to produce 2,000,000 tons of iron a year she will need 7,000,000 tons of coal.

This brings up the question of her supply of coal. Japan is by no means rich in coal; her store of the variety needed for making coke is extremely limited. At a time of war, rails may be converted into guns to make up for her short supply of iron, but no substitute can be found for coal. In the writer's opinion, how to achieve the self-supply of iron is not of as much moment to the military defence of the country as how to preserve her present supply of the material for coke, and her present collieries, and how to keep the means of conveyance in a state of readiness and perfection. Every encouragement is due to efforts made to utilize those substances considered at home as wastes, like sand iron and sulphuric residue. The most sparing use must be made of those mineral treasures that, once mined and used, can never be replaced.

Iron Mining in Chosen and China

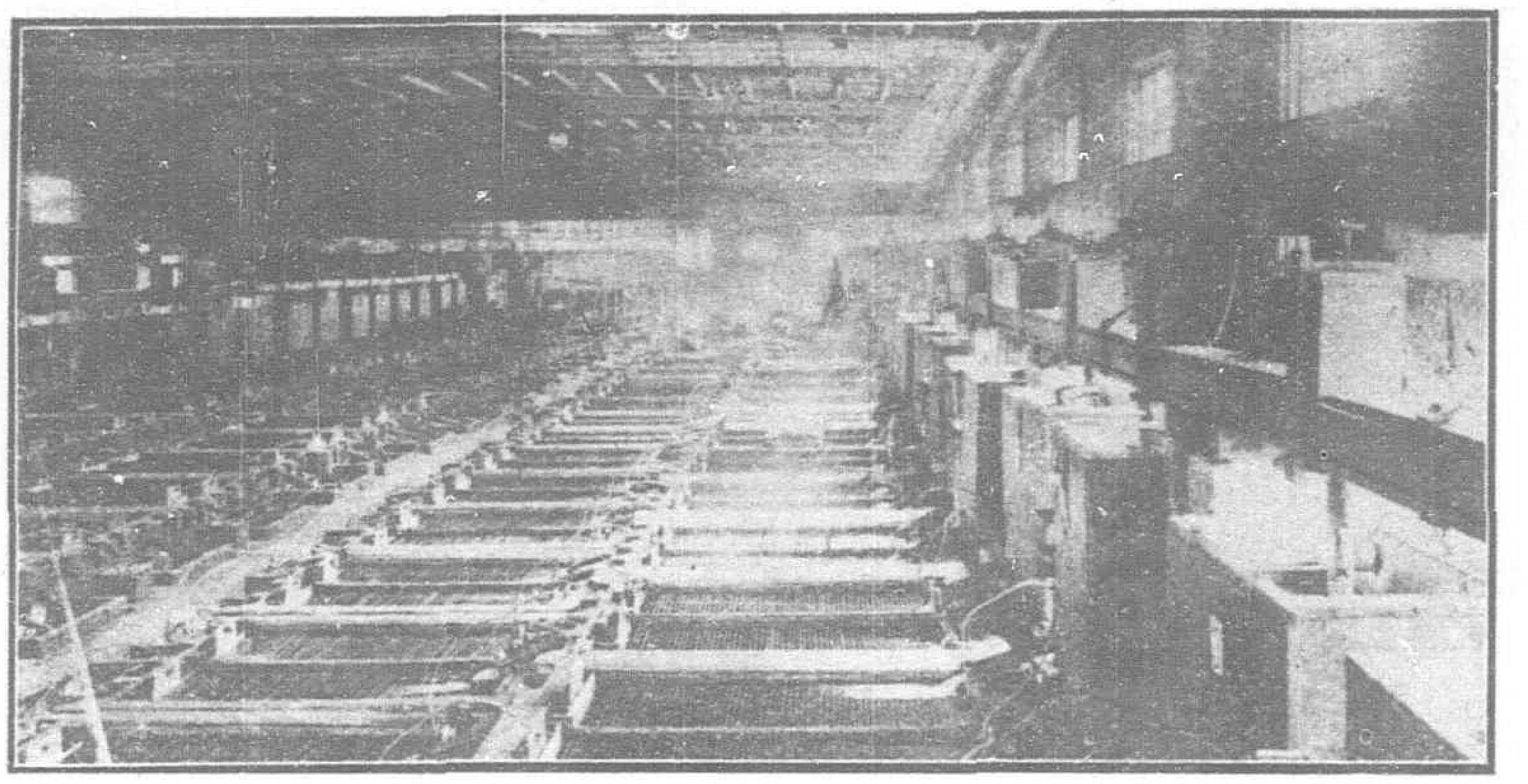
Fortunately for Japan, the scarcity of iron within her own domain is made up for by the presence of rich veins in Chosen **and China.** The Wakamatsu Iron Works in 1915 used 270,000 tons of coal from Taiyeh, 190,000 tons from Chosen and 10 000 tons of home coal. The Wanishi Works at Hokkaido is also dependent upon foreign supplies. Messrs. Okura & Co., with their Chinese partners, are engaged in the mining of iron and coal and the making of pig iron at Penchihu, Manchuria, and when the high furnaces commenced last year are completed, they will be able to produce 70,000 tons of iron a year. The Mitsui's are planning an iron foundry at Kenjiho, Chosen. The South Manchurian Railway Company have it in contemplation to work the iron mine at Anshanchan.

Last year the Oriental Iron Making Company with a capital of Y15,000,000 was established by Baron Shibusawa and other projectors for the purpose of **utilizing in Japan the product of the Paichung iron mine in Anhui.** Mr. Yasukawa, one of the coal-kings of Kyushu, is organizing a foundry which will derive its supply of pig iron from Hanyehping. The foundry recently commenced at Saeki, Hiroshima, by Messrs. Okura & Co. is to be devoted to the manufacture of pig iron with the least percentage of sulphur from the poor ore of Penchihu. These works are admirably suited to the present requirements of Japan, and China on her side will benefit by exporting raw and half-finished material with which she is richly gifted.

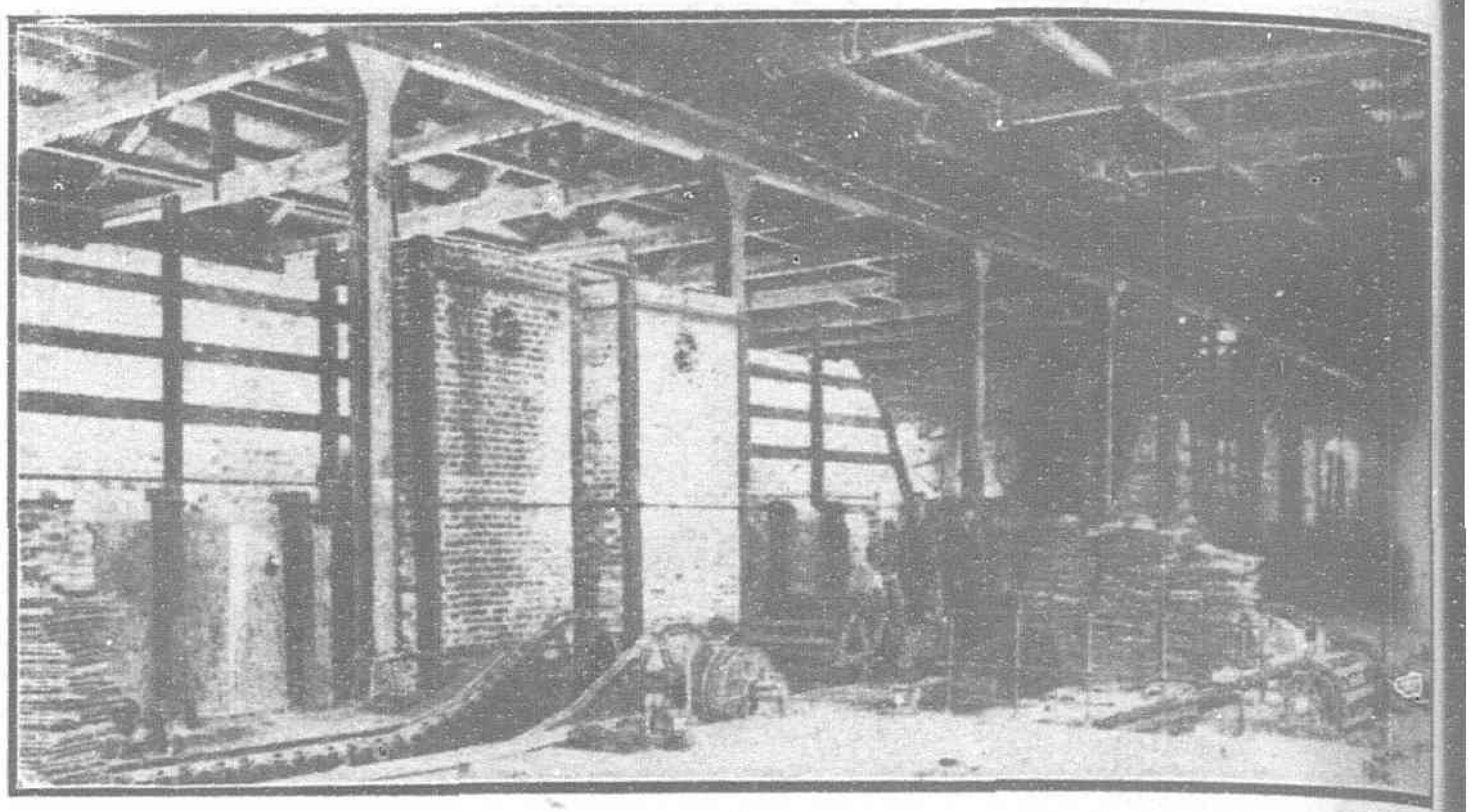
Steel Refineries Erected at Home

The Wakamatsu Iron Foundry, the Sumitomo Steel Works, the Japan Works at Muroran, the Japan Steel Tube Company, the Kobe Steel Works, the Kawasaki Dockyard and the Tobata Iron Works are essentially designed for the manufacture of steel casting, tubes and bars, and all have effected extensions of their old plants. The newly established works, the Kishmoto Iron Works of Osaka, the Osaka Iron Founding Company, the Tokyo Steel Making Company, the Ogura Iron Works, the Tokyo Spring Steel Works and the Iwai Iron Works at Tokuyam, are devoted to the manufacture of nails, plates and band.

The manufacture of steels of special and costly description by using electricity instead of gas or coke is now coming into vogue. A similar process was started at Suwa, Shinshu, on a small scale several years ago. The Wakamatsu Iron Works and the Fujitagumi Steel Works at Kirokawa, Inawashiro, are now equipped with adequate equipment for this purpose. The latter Works employs 3,000 kilowatts of electricity and produces chiefly ferro-silicon, and the laboratory owned by the same financial



Tank Room, Nikko Copper Works



Casting Apparatus at Nikko Works

house situated at the Osaka Harbour is manufacturing, besides ferro-silicon, tungsten and chrome alloys. The Japan Electric Iron Works, capital, Y. 150,000, managed by Messrs. Miyakuchi and Sakurada, and situated within the compound of the Sakuragawa Hydro-Electric Power House; the Electric Iron Works at Atsuta, capital, Y. 500,000, started by Baron Shibusawa and Mr. Inouye, and the Kishimoto Iron Works, situated midway between Osaka and Kobe, are engaged either in trials or in the manufacture of the special products mentioned. At Yasuki and Yoneko ores prepared from dust iron are being passed through electric furnaces. In this respect Japan is still far distanced by Germany where in 1915 the products of her electric furnaces (inclusive of the portion of France occupied by Germany) exceeded 130,000 tons.

The most profitable use of the electric furnace being to make good steel out of indifferent materials, the Japanese works cited above, if they do not at the same time turn their attention to the production of some other substances, like abrasives for instance, will soon be brought to the verge of ruin by their keen competition, as were several years ago those mumerous factories erected for the manufacture of carbide. The Wakamatsu Iron Works is reported to be conducting experiments with furnaces, built on the induction system. The Japan Special Steel Corporation established by Mr. Watanabe of Yokohama and another works at Nagoya are known as manufactories of steel for tools, but are not using electricity.

The Rise of Copper and the Increased Output of Zinc

Japan, which produces 70,000 tons of zinc, ranks next to the United States of America, which produces upwards of half the world's total output of one million tons, and consequently is second in the world in the production of this metal. The Ashio, Hitachi, Kosaka, and Besshi mines are producing each upwards of ten thousand tons. Japan's output for 1916 is estimated at 86,000 tons. The price went from Y. 600 per ton in the ante-war period to the average of Y. 725 in 1915, to Y. 1,124 in June, 1916, and to Y. 1,516 in December following.

Taking the cost of production at Y. 450 per ton, and the selling price at Y. 1,000, 10,000 tons would bring in a profit of Y. 5,500,000. If the adage holds true that they are poor who are worrying themselves about the money they have made, the owners of copper mines in Japan are certainly the poorest creatures in the world. At a prosperous time like the present the mine-owners care but little about improving the technical skill of their engineers or making them conduct researches. A slight fall in the actual output is more than compensated for by the increase in price.

Japan's supply of zinc ore is extremely limited. The Osaka Zinc Company was first established to digest the ore produced at home and showed a fair record in point of technical advancement, when the war broke out. The steady rise of zinc and the stoppage of export to the consuming countries, Germany and Belgium, induced the mine-owners of Australia and China and the Japanese refineries to enter into an alliance, and this was followed by an increase of furnaces in Japan. Messrs. Suzuki & Co. of Kobe laid out a refinery on an extensive scale at Hikoshima in a very short time. The Kuhara Refineries were opened at Saganoseki and Hyogo, and several other works for electrolization of zinc came into existence. Before long Japan will be producing 60,000 tons, importing the balance of her consumption, 120,000 tons, from abroad. Hamburg and Liege transferred to the coast of the Inland Sea will perfectly describe the situation.

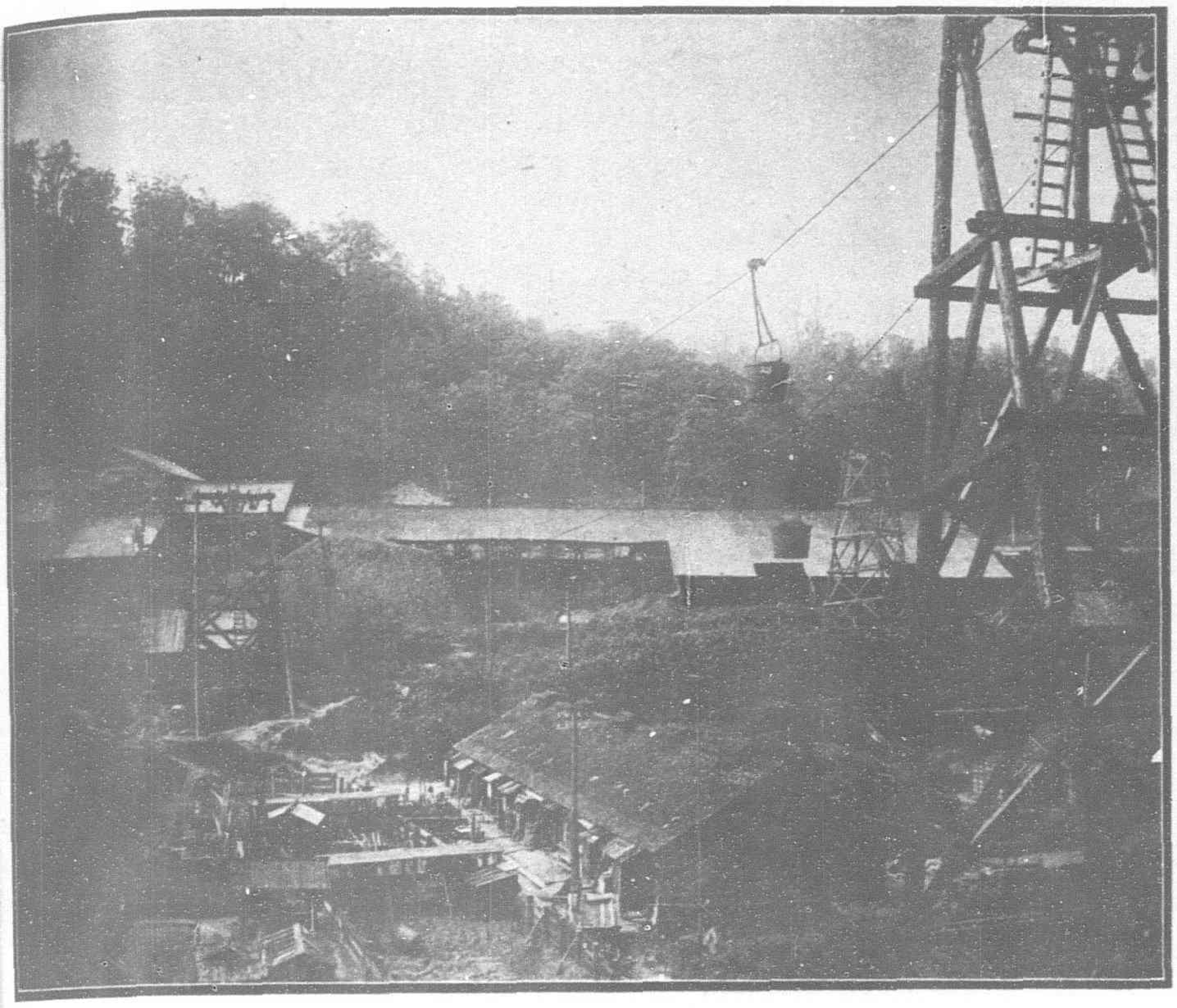
Japan may justly be proud of her successful utilization of electricity for the production of zinc. It is in America and Japan that the latest developments in this line of metallurgic work have taken place. The Kosaka copper mine was the first to initiate the new process, and the Nishitori, Ajikawa, Takata and Inawashiro works of the Osaka Zinc Company are all turning out pure zinc. The Osaka Zinc Works is erecting a hydraulic power house in the neighbourhood of Matsumoto, Shinshu, and the low cost of power obtainable there will eventually induce the concern to remove its entire electrolytic plant to the same locality. The Mogi Works at Uji, the Kano Electric Zinc Company, the Fukushima and Onahama Works of the Electric Zinc Company, the Isoshima Works of the Zinc Electro-Refining Company, the Japan Electric Zinc Company, and the Zinc Electrolizing Company were established in rapid succession and some of the works are now in course of construction.

Needless to say that the almost simultaneous establishment of so many factories is due to the marked appreciation of pure electrolytic zinc immediately after the outbreak of the war. Cheap power is an important element of success for these works at ordinary times. The import of ores in large quantities from abroad has kept the price of the home ore comparatively low. A gradual rise from now may be safely expected. The ore from Mimasaka and neighbourhood with a mixture of iron is now amenable to successful utilization. Altogether the owners of zinc mines have a very hopeful future before them.

There remains one thing to be stated about brass. It is the import of subsidiary cash coins from China. This reminds the writer of those days towards the close of the Tokugawa Shogunate, when the great difference then existing between Japan and Europe in the ratio of gold to silver induced Dutch and other foreign merchants to bring enormous quantities of silver here and carry home the gold they had obtained in exchange for their white metal. The present transactions in cash are governed by the same motive. It is stated that in the early part of 1916 a monthly average of 3,000,000 kin (1kin=1⅓ pounds) was imported to Japan. Not a very high degree of skill was shown in the refining of the coins so imported, as time was the first consideration.

Gold in Chosen

The appreciation of other commodities means the depreciation of gold, and the higher prices paid for quicksilver and cyanide of potash required for the refining of gold much dispirited the owners of the gold mines in Japan, who consequently preferred to sell their ore directly to the refineries instead of refining it themselves. The output of gold in 1916 was a slight decline from that of the preceding year. Chosen yields nearly as much as Japan proper. The gold mines in Chosen worked by foreigners are doing well, while those managed by Japanese are rather limited in scale. There are large fields still remaining to be searched for gold and wide areas of gold dust are entirely neglected. Gold mining in Japan promises to develop still farther.



SCREENING PLANT AND AERIAL TRAMWAY AT SORCHI MINE

The Electric Refinery at Nikko produces the largest quantities of gold and silver and at the same place, for the reason that these gold and silver ores are melted at the same time with copper ore and the electrolytic refinement of the copper leaves gold and silver as a sludge in the vats. The gold and silver mines at Sado Island are the largest in Japan, yet the silver obtained from the copper ore of Ashio during 1916 was two and a half times as much as the output of the insular silver field. In a word an increased production of copper in Japan means a corresponding increase of silver. There is not a single paying silver mine of any pretentious size in Japan.

Refineries of the Inland Sea

The refineries mentioned in the preceding pages are nearly all situated near the coast of the Inland Sea. There are besides several copper refineries, both new and old, which may be tabulated thus:

Owners	*Ores*	*Localities*
The Sumitomos.	Copper	Yosaka Island, Ehime Prefecture
The Fujitas.	,,	Inu Island, Okayama ,,
The Kajimas.	,,	Chigiri Island, Hiroshima ,,
Suzuki.	,,	Dairi, Fukuoka ,,
The Furukawas.	,,	Mizushima Island, Okayama ,,
Kuhara.	,,	Saganoseki, Oita ,,
The Meiji Refining Co.	,,	Sashima Island, Ehime ,,
Suzuki	Copper & Lead	Hibi, Okayama ,,
Koshima Works.	Zinc & Lead	Koshima, Okayama ,,
Kuhara.	Zinc	Iyeshima Island, Hyogo ,,
Suzuki.	,,	Hikoshima Island, Fukuoka ,,

The copper refinery at Mizushima was quite recently purchased by the Furukawa Family. The Iwasakis and Mogi are erecting new works in the vicinity of Inu Island, Okayama Prefecture. The metallic work of the East and the South is being concentrated in the western provinces of Japan. Other lines of skilled labour will gradually follow suit. The concentration of various industries will have the effect of cheapening electric power. And it has been found inadvisable to locate works on detached islands. Speaking of copper refineries, the writer must mention the Kuhara Refinery at Chinnanpo, Chosen, and its purchase of the copper mine at Kozan as being the corner-stone of Mr. Kuhara's North-Asiatic edifice in a mining sense.

Japan's annual consumption of lead in ordinary times is 20,000 tons, of which only 30,000 tons (sic) is produced at home. Kamioka has been well-known from olden times as a lead and silver (and now zinc) mine. An enormous quantity of lead was consumed last year for war purposes. Furnaces were erected by the Osaka Zinc Company at their Konoshima Works and by the Suzuki Metallic Products Company at Hibi, Okayama Prefecture, where ores imported from Australia, China and Siberia are being dealt with. Contracts for the import of lead to nearly 40,000 tons were entered into last year.

Tin, manganese and tungsten likewise increased in output last year. The last named metal was at one time quoted at Y. 6,000 per ton, but has since dropped to Y. 2,000, due to the increased production in America.

The Rise in Price of Coal

Unlike other mining products, coal had long remained inactive owing to the scarcity of bottoms, the decreased demand for fuel for long distance voyages and the plentiful stock. The cut production enforced in 1915 (a reduction 20% for Kyushu coal, 15% for Shitachi and Iwaki coals and 10% for Hokkaido coal) had reduced the stock, and the prosperity of the domestic industries began to tell favourably upon the price of coal from the latter half of 1916, the sharpest rise having taken place quite recently. The quotation rose from Y. 5 per ton some time ago to Y. 13 to Y. 15. The restriction on the output was removed, but no increase was observable.

The prosperity of other industries enticed workmen from coal mines and the owners in consequence were hard pressed for labour and were barely managing to maintain their former capacity. The strategems resorted to by rival mine-owners to entice workmen from each other's camps would make painful reading. The employers are now providing all sorts of amusements so as to induce their men to stay with them. Japanese coal, never cheap, if kept at the present high rate, will be a source of embarrassment to the Japanese manufacturers.

The Wakamatsu Iron Foundry is consuming nearly 900,000 tons of coal every year, but it is independent for its supply of coal. Iron and zinc factories coming into existence in the future must needs find their own coal fields. The Government Board of Railways consumes ten per cent of Japan's total output. The contractors to the Board are now having hard times owing to the rise of freight and the scarcity of bottoms.

Petroleum and Sulphur

The output of petroleum in Japan fell off slightly in 1916, and, the import from America not showing any increase, the price went up by 40 per cent. New fields are being worked at Hokkaido and Akita, but so far no successful find has been reported. Sulphur, formerly principally exported to America, was sent in large quantities to Russia in 1916, and the output increased by 30 per cent due to the higher price ruling. As the year drew nearer its close, however, business in sulphur slackened and an over-production was apprehended. A further fall appears inevitable. The quotation, which usually hovered about Y. 32 per ton, rose to four times that rate in May, 1916, and is double that rate even now.

Post-bellum Prospects

Authorities differ on the subject, of what prices will prevail after the end of the present war, some citing the Crimean War and the Civil War in America to maintain that the price of metal during the war, will remain the same until after its conclusion, others contending that this war being unparalleled the post-bellum conditions must also be unparalleled, that the barest interest on debts contracted during the war cannot be paid except by curtailing the military expenditure and this must result in the fall of metals. From an engineer's point of view, Germany and Austria, whose output of copper is only about 40,000 tons, and who have applied every available strip of copper for purposes of war, will need the metal in larger quantities than ever after the war is over.

America, who produces half the world's total output of copper and is practically controlling the price of the metal, has had a costly experience of her attempts to manipulate it, too costly perhaps to think of making another attempt. At any rate any artificial price that may be created by her in the future will not last so long as did the limits set up by the "Amalgamated" years ago. Copper is too dear at its present price; after the war, nay even while it is raging, the price may suffer a sharp drop.

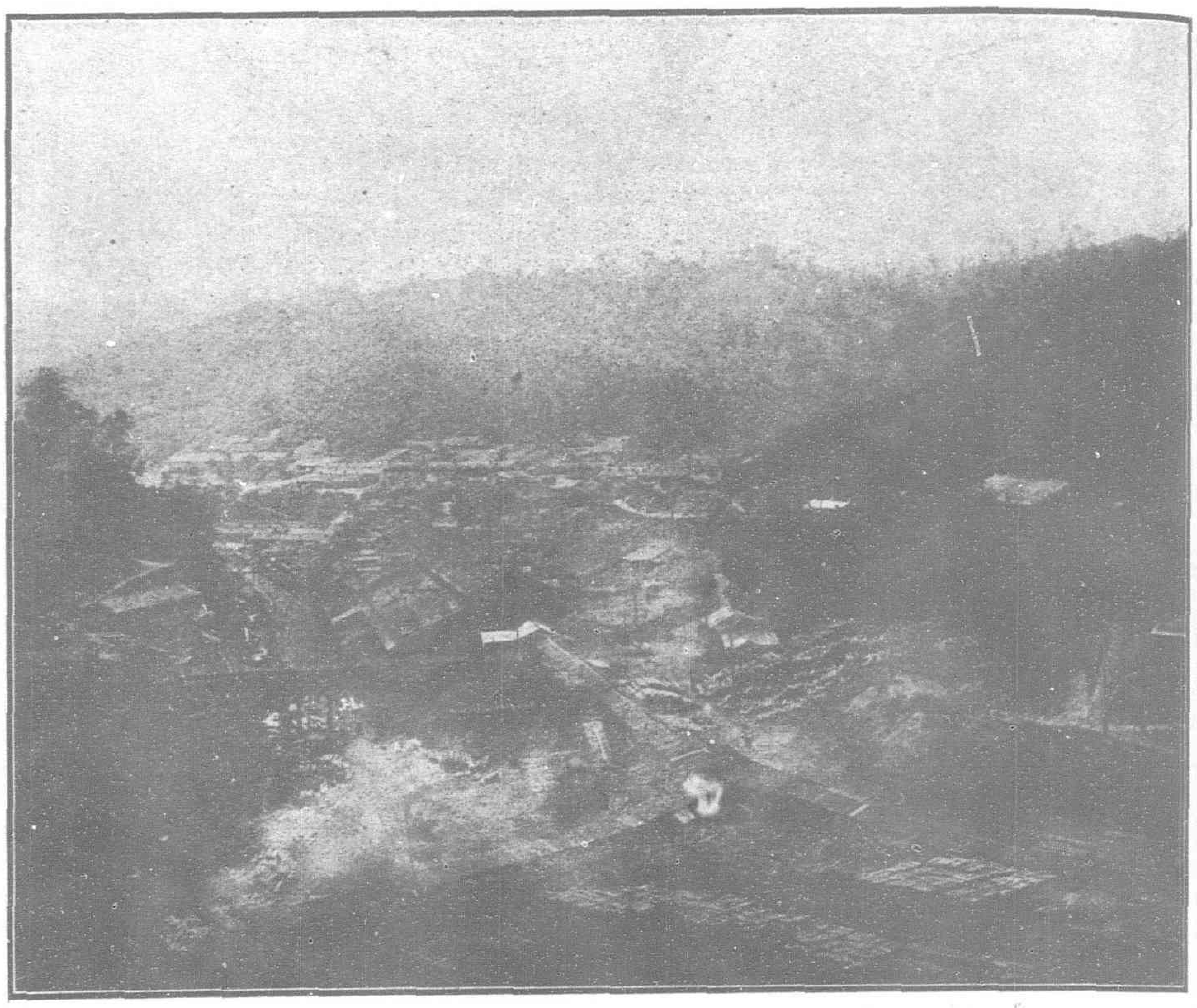
Zinc manufacture is receiving the keenest attention now in Japan. The league of Australian miners, after selling under contracts running for many years after the war 230,000 tons of zinc ore to the British Government, will, it is reported, sell the balance, 170,000 tons, to France, Belgium and Japan. Japan cannot depend upon the supply of Australian ore, she will be forced to seek ores **in China, India and Siberia.** Japan will necessarily have to compete with Germany, and could she be credited with the same amount of technical skill, Japan might get the better of Germany. The price of zinc, already on the decline, is beyond the reach of American control. It is advisable that the Japanese refineries should try to excel themselves and replace their temporary furnaces with those of permanent and more economical character, and thus equip themselves for the coming industrial struggle.

Iron, more especially building materials, will be required for the re-building of cities and towns after the close of the war, but not in such large quantities as will exceed the capacity of the belligerent as well as neutral countries who are devoting their entire energies to the production of this metal. There is doubtless a large quantity of waste iron waiting utilization after the war.

As for coal, its price can be regulated with comparative ease in Japan. Hitherto reduced production has been possible only when the miners have been reduced to extreme stress and that is owing to the absence of complete association among the miners, who now have it within their choice whether or not to suffer from over-production. The domestic consumption of coal will decrease after the close of the war while the export will increase rapidly. But in view of the possible invasion of Chinese coal, the miners must congratulate themselves if the local quotation can be maintained at above the figures for 1914.

The lessening of the mining expense and of the price by better selection of coal and the manufacture of briquettes is a desirable improvement. The idea should gain prevalence that it is a shame to export coal in its raw state, and the consumers on their part should improve their methods of combustion conformably to the quality of the coal they are using. The thickness of the smoke arising from the stacks in Osaka is a measure of the local business men's conception of economy of fuel.

To summarize, mineral products will not maintain their present high prices after the war but will not fall below the level of the pre-war period. The writer is persuaded that some branches of the mining industry have been enabled by the war conditions to lay foundations for their future development, and possibly expansion in the **direction of China and Siberia.** A section of the Japanese public is inclined **to view the exploitations of American capitalists in China with alarm. American capital cannot find safe investments in China with her present financial conditions. Mexico is an abiding example. The intervention of Japan, with her potential power, is necessary. Japan will not allow China to become a second Mexico or a second Balkan Peninsula.** Japanese-Chinese co-operation is well enough, as is the co-operation of all interested countries, and the union of Japan, China and America for purposes of industrial achievement is still better.



General View of Poronai Mine and Buildings

PHILIPPINES TO SAFEGUARD CAPITAL

Filipino or American capital invested in the Philippine Islands by purely Filipino corporations for the development of any national industries shall be guaranteed by the Philippine government to the extent of six per cent on the capital invested, if a bill introduced in the lower house by Representative Nieva is enacted into law. The aim of the proposed legislation is to attract idle Filipino capital out of its hiding places and to give inducements to American capital to be invested in the country for extensive industrial development.

This guarantee provided by the proposed legislation shall be extended by the government to those corporations who shall engage in the development and *exploitation* of those industries which have a direct bearing on the natural resources of the country such as, the exploitation of oil, coal, iron and other mineral fields; the development of the industries of glass, alcohol in quantities to warrant exportation, steel, cement, paper, coconut, vegetable and other similar oils; the manufacture of cotton and abaca; of leather, sugar refining for local consumption and exportation; sugar centrals, railroads, interior maritime and transoceanic transportation, and others which require considerable capital for their development and which will tend to the building up of the Philippine Islands.

Such industries will be guaranteed by the government, both as to the use of their products as well as in the customs tariff, and these guarantees may be claimed by corporations as soon as their productions are being put on the market in commercial quantities. But in order to receive these guarantees the corporations shall be exclusively Philippine and subject to government supervision, and dedicated to the exploitation of an industry of national interest. At no time will there be admitted into the corporations any stock-holders but Filipinos or Americans, nor will any of the interest of the corporation be transferred to any foreigner, any such action laying the corporation open to confiscation by the government.

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PLAYING WITH INDUSTRIAL REFORM

Early this month there emanated from the Ministry of Commerce, Agriculture and Industry in Peking "Regulations for the Organization of the Society for the Improvement of Industry.'' The regulations set forth that the object of the Society is to secure co-operation "of all men of industrial experience and knowledge for the improvement of the industrial condition of the nation." The office of the Society is to be established in the Ministry of Commerce, Agriculture and Industry, the Minister is to be the Chairman of the Society, and two persons are to be selected by him to act as vice-Chairmen; the membership is to be unlimited and at any time the Minister may offer membership to anyone possessing special knowledge of any branch of industry, experience in managing industrial enterprises or having other industrial experience, good standing in industrial circles, or to any Chinese abroad who is anxious to promote industry in his mother country. The objects of the Society are (1) to institute investigations and to compile reports on industrial conditions of both this and foreign nations; (2) to attend to inquiries and furnish information regarding any special industrial affairs; (3) to offer advice and suggestions to the Government in connexion with industrial affairs, and, (4) to assist the Government to encourage and develop the industry of the country.

Whatever can be done in China to encourage a campaign for industrial development should be done, but we question if the Society mentioned above will be able by one iota to push reforms ahead. Merchants and others interested in the manufacture of articles from natural products have no confidence in officials, and until the Ministry of Commerce, Agriculture and Industry is remodelled, and placed upon a business basis, any call from them for co-operation on the part of those who may have some experience, gained mostly in spite of official obstruction and oppression in the past, is likely to go practically unanswered. We have many times urged an abandonment of of the ancient ideas entertained by officials with regard to those who follow commercial and industrial pursuits, and the enlistment of their services as much as possible in the government of the country. Until this is done China will continue to stagnate. The professional official will take no responsibility. The introduction of any innovation, to his mind, would undermine his position—and his position is of more value to him than any step making for national betterment. The official who adheres to the time-honored groove, makes no fuss calculated to worry those who are his superiors in office, and above all is not foolish enough to attempt to recast procedure of any kind, is, for one thing, sure of retaining his place on the pay-roll, and for another is fairly certain of promotion if he can pull the necessary political strings. Let any official strike out in a direction of progress which is likely to disturb the ancient order of things, and at once a myriad enemies are provided with a chance to intrigue against him and oust him from office. The fate of many is before all, and as the old Chinese motto to "take warning by the cart ahead,'' is engraven on the tablets of all official memories, the would-be reformer who tries to inspire officialdom to action is given a cold shoulder, and plans for suggested improvements are quietly pigeon-holed. And so they will continue to be shoved from sight until some official with power and with courage arises to have a thorough reform of the civil service undertaken. It is futile to endeavor to save a tree by doctoring its leaves when the roots are diseased or are being destroyed by grubs. Above all, industrial reform is not to be effectively introduced by a Society bearing an official brand and of which the Minister of Agriculture and Commerce is the chairman. Such a Society will attract nobody of influence in commercial circles, and furthermore it will have no permanency. The present Minister, in any circumstances, is not likely to hold his portfolio for long, and it can be taken for granted that the succeeding Minister will have no truck with any of the schemes of his predecessor—for such is "olo custom" in China. Industrial development will only be encouraged by the introduction of proper laws, and the removal of "squeezes'' claimed by officials in the provinces as their due whenever any enterprise is inaugurated. Until definite progress is made by the Government in providing security for the capital and property of possible investors, coupled with a civil service reform to secure better officials, the formation of officially led Societies is merely playing with a serious national matter.

CHINA'S BUDGET

The estimates for the current fiscal year, ending on June 30 next, have been published by the Chinese Government. How far the figures under the heading of "Revenue" actually represent the income that will be obtained cannot be said. Until China is able to inaugurate reforms in finance, embracing the revenue-producing sources, no budget can be accepted as at all reliable, and this being so, analytical comment is rendered practically superfluous. Insofar as "ordinary" expenditure goes it is interesting to note that out of a total estimate of $291,803,470, (Mexican Currency), the Ministry of War will absorb $156,606,047—just over half. Under the head of "extraordinary" expenditure the Ministry of War is down for the largest amount—$10,711,333. The Army of China, therefore, costs more to maintain than all the other administrative departments put together,—a scandalous state of affairs when it is remembered what a futile force the army is. Compare with army requirements what is set down for educational purposes—a paltry $4,433,893! And the Chinese people are more in need of education than anything else, while they regard the army as a scourge and a source of terror to the soul rather than a blessing and a guardian of the home. Once when the present Premier, who also is one of the chief military leaders, was questioned about some projected political reform, he replied that he was not much interested in politics, and that if he were allowed to reform the army others could reform politics to their hearts' content. For some time now he has been in a position to inaugurate really definite changes, but so far as we can learn no pruning knife has been applied to expenditure, and no steps have been taken to reduce the ranks. If the Premier would merely give an earnest of his professed beliefs and desires by putting several thousand soldiers at work on roads, not only would the people have reason to believe that a new day was dawning but they would in the end have tangible evidence that good roads are absolutely essential as an incentive to the proper development of trade and industry and as a prime factor in social betterment. If there is to be a national uplift of any consequence in China it can be furthered almost as much by the disbandment of the army that now exists as by any other means. A new army could be founded on the best material in the existing one, but virtually the whole of the present military organization could be done away with without harm to the country. As a matter of fact the country would gain rather than lose. The Budget is as follows:

Ordinary Revenue

(1)	Land Tax	$90,115,784
(2)	Customs Revenue	73,056,663
(3)	Salt Revenue	96,767,010
(4)	Tax on Merchandise	42,919,194
(5)	Various Principal and Miscellaneous Taxes	34,768,432
(6)	Miscellaneous Contributions	5,448,686
(7)	Income of Government Properties	2,083,401
(8)	Various Provincial Receipts	5,101,531
(9)	Receipts of Central Offices	1,374,648
(10)	Direct Central Receipts	36,584,311

The total of the Ordinary Receipts is $388,009,660

Extraordinary Revenue

(1)	Land Tax	$5,751,464
(2)	Customs Duty	706,885
(3)	Merchandise Tax	21,205
(4)	Principal and Miscellaneous Taxes	3,911,410
(5)	Income from Government Properties	8,351
(6)	Various Provincial and Miscellaneous Taxes	91,610
(7)	Receipts of Central Offices	2,248,437
(8)	Direct Central Receipts	23,510,969
(9)	Central Miscellaneous Receipts	8,100,000
(10)	Domestic Loans	24,291,468
(11)	Public Loans	16,187,305

The total of the Extraordinary Receipts is $84,828,924: and the grand total of both the Ordinary and Extraordinary Receipts is $472,838,584.

Ordinary Expenditure

(1)	Ministry of Foreign Affairs and its subordinate offices	$4,446,548
(2)	Ministry of Interior and its subordinate offices	42,570,109
(3)	Ministry of Finance and its subordinate offices	61,792,970
(4)	Ministry of War and its subordinate offices	156,606,047
(5)	Ministry of Navy and its subordinate offices	7,304,135
(6)	Ministry of Justice and its subordinate offices	9,337,156
(7)	Ministry of Education and its subordinate offices	4.433.893
(8)	Ministry of Agriculture and Commerce and its subordinate offices	2,734,790
(9)	Ministry of Communications and its subordinate offices	1,533,606
(10)	Ministry of Board of Mongolian and Tibetan Affairs and its subordinate offices.	1,044,216

The total of the Ordinary Expenditure is.... $291,803,470

Extraordinary Expenditure

(1)	Ministry of Foreign Affairs and its subordinate offices	$1,846,786
(2)	Ministry of Interior and its subordinate offices	3,117,770
(3)	Ministry of Finance and its subordinate offices	162,397,633
(4)	Ministry of War and its subordinate offices	10,711,333
(5)	Ministry of Navy and its subordinate offices	847,434
(6)	Ministry of Justice and its subordinate offices	28,610
(7)	Ministry of Education and its subordinate offices	594,943
(8)	Ministry of Agriculture and Commerce and its subordinate offices	1,279,496
(9)	Ministry of Communications and its subordinate offices	116,833
(10)	Board of Mongolian and Tibetan Affairs	94,276

The total of the Extraordinary Expenditure is $181,035,114; and the grand total of both the Ordinary and Extraordinary Expenditure is $472,838,584.

CHINA AND THE LIKIN CURSE

To those of us who have lived in China for many years one remarkable change has been peculiarly noticeable in the past few years and that is the freedom with which the common people are expressing their opinion about the Government. In a recent issue we referred to a petition in which it was frankly stated that merchants could not safely have anything to do with the Government, and we now find the Central Chamber of Commerce boldly charging officialdom with misgovernment and corruption. A few years ago the head of anyone guilty of such outspokenness would have been forfeit, and it is therefore refreshing to see the public assuming a boldness which might make for reform in administration quicker than anything else. We have several times felt constrained to write very plainly on the subject of general corruption and misappropriation by officials in the handling of tax collections, and we now find that the Central General Chamber of Commerce has come forward with a petition bearing out what we have stated, and requesting Parliament to tackle the question of levying a Mercantile Tax, and the issuance of regulations which will do away with that curse on trade known as *likin*—a tax placed by any official who can manage to secure the power to do so upon merchandise as it travels inland.

The petition published below gives some idea of the disabilities under which the foreign and native merchants alike labor owing to the existence of uncontrolled taxation, and foreign merchants could produce a mountain of evidence to prove how trade in general is hampered and interfered with by the *likin* officials. The petition of the merchants for reform in this direction coincides in a measure with the demand of the Government that some guarantee shall be given by the Entente Powers that if China joins with them against Germany they will, among other things, assist China to revise the tariff and establish a customs duty that will permit her to abolish inland taxation altogether. At the present time the duty is supposed to be five per cent, but in fact it is less than that. What the Government suggest as a minimum to enable the entire abolition of inland taxation is an advance in the Customs duty to 7½ per cent. This would enable the Government to equalise the loss caused by the removal of the internal taxation barriers, and would give a great filip to trade in general. With a fixed duty on entry to the country commerce would be easier to develop and would secure freedom of movement which it does not now have. Thousands of provincial officials would, however, be robbed of splendid opportunities for making wealth, and from these some objection can be expected—objection, we hope, which will be futile.

The Entente Ministers, in reply to the Government's advance on the subject, expressed themselves as agreeable to favorable consideration of the matter. The abolition of *likin* is an old question, however, and definite mention of its advisability and arrangements for securing it came up at the time of the negotiation of the Treaty between Great Britain and China in 1902 now known as the Mackay Treaty. In this instrument Article VIII deals with the matter. In the preamble it is stated that "The Chinese Government, recognizing that the system of levying *likin* and other dues on goods at the place of production, in transit, and at destination, impedes the free circulation of commodities and injures the interests of trade, hereby undertake to discard completely those means of raising revenue with the limitation mentioned in Section 8. (which provides that China may impose a consumption tax). The British Government in return, consent to allow a surtax in excess of the Tariff rates for the time being in force to be imposed on foreign goods imported by British subjects and a surtax in addition to the export duty on Chinese produce destined for export abroad or coastwise." The methods of procedure agreed to embraced an undertaking on the part of the Chinese Government "that all barriers of whatsoever kind, collecting *likin* or such like dues or duties, shall be permanently abolished on all roads, railways, and waterways in the Eighteen Provinces of China and the Three Eastern Provinces. (i.e., Manchuria.)" The British Government on its part agreed that "foreign goods on importation, in addition to the effective 5 per cent import duty as provided for in the Protocol of 1901, shall pay a special surtax equivalent to one and a half times the said duty to compensate for the abolition of *likin*, of transit dues in lieu of *likin*, and of all other taxation on foreign goods."

It is from this undertaking that the merchants, in the petition which follows, obtain the suggestion for a 12½ per cent tariff, and which prompted the Government, when it sought some advantages if it joined the Entente, to mention 12½ per cent as desirable as a substitute for the freedom of the interior from the *likin* barriers. As it would be in the best interests of trade to abolish the tax, and since the great trading powers chiefly interested will be at one with China if she enters the war, it is more likely now than at any previous time that the matter will receive the attention it deserves and will be brought to a settlement. The petition is as follows:

> The people of this country have suffered severely from cruel taxation, **because the Government does not know how to handle the financial affairs of the nation.** In the late Government, all means were employed to extort money from the people, and in the name of the Republic it enforced many despotic measures. The present financial crisis has been the result of the misgovernment of the past four years. We are glad that the Republic has been restored, and we are perfectly willing to pay taxes, but it is our hope that the Government will afford us proper protection. As the administrative expenditure of the Government is to be defrayed from the proceeds of the Merchandise Tax, it is most urgent that a uniform system should be fixed for its collection. The present system is hopelessly irregular and fraught with all kinds of mischief. There are all kinds of collectorates with a large number of staffs everywhere for the collection of the same tax, the proceeds of which have chiefly been misappropriated. Their corrupt practices have both injured the interest of the Government and arrested the progress of the industrial and commercial development. The only remedy for the present unsatisfactory condition is to abolish the offices of Likin and Native Customs of the whole country, and to levy once for all the Merchandise Tax at the place of production. Then the merchandise shall be free from any further taxation in its transportation from place to place, similar to the system adopted by the Customs House. As to the details of the rates of taxation on various merchandise, the Chamber of Commerce of each province should elect two members to assist the Government in fixing the same on each particular merchandise. With the exception of the heavy taxes on Wine, Tobacco, etc., which have been specially fixed and promulgated, all native products shall be taxed at between 2 and 5%, thus encouraging home industry and the exportation of native products. It is hoped that the Law on the taxation of native goods will be enacted as soon as possible for the relief of the poor people of the country. The reform of the present system will certainly lead to the total abolition of the Likin System and the final increase of the Customs Tariff. After the abolition of the numerous Offices of Likin and Native Customs, we shall commence the administrative reforms of the Collectorates of the Merchandise Tax, by increasing the salary of the staffs and stopping "squeeze" and other corrupt practices. At present the rate of the Customs duty is not up to the 5% stipulated by the Treaty, but as soon as the Merchandise Tax in the country is definitely fixed, we shall demand an increase to 12 ½% on account of the abolition of the Likin. Should the Government try to reform the financial administration of the country, there will be some hope for the future, because there would be funds sufficient to meet the expenditure of the Government, were they not "squeezed" by corrupt collecting officials. Therefore in accordance with the provisions laid down in Article 7 of the Provisional Constitution we hereby submit this petition to the House of Representatives, requesting that the Regulations on Merchandise Tax be enacted before the close of the present session of Parliament, and that all petty collecting offices be forever abolished to the relief of the merchants and traders of the country.

DIRT AND DISHONESTY—CHINA'S WORST ENEMIES

The widest publicity should be given in China to everything which might stir the Government and the people to a proper realization of the deplorable hygienic conditions into which the country has drifted, and the dishonest practices which exist among officials, in the hope that something may be done to effect reforms. Every traveller who visits China is struck first by the filth in which the people live, and but a short sojourn shows him that the abomination of desolation which characterises nearly every village, town, and city which is distinctly Chinese is primarily due to official neglect and improper use of revenue. Failure to institute hygienic conditions is not due to failure on the part of the people to pay their taxes. The people do that, and, as the General Chamber of Commerce states in a petition to the House of Representatives, published in another column, they are ready to continue doing so. The responsibility lies with the officials who collect the revenue, and who misappropriate it—who, in short, apply practically none of it to the public service. After the officials have abstracted what they feel justified in putting aside for themselves, the balance is utilised in the upkeep of other officials and the army—a collection of armed coolies with all the instincts of brigands and none of the qualities of patriotic men, who are of no use to their country and who absorb more than half of the expenditure listed in the annual budget.

Leading Chinese, thinking Chinese, must surely be shamed by the constant pointing of the finger of scorn at the outstanding deficiencies of the nation—deficiencies that are so obvious to all, apparently, that the Chinese who live among them fail to see them owing to sheer familiarity with them. Not a visitor to this country fails to shudder at the dirt into which he is plunged and in which he exists from the moment of entry to the moment of departure. As we have previously pointed out, the railway carriages in which the tourists travel, and from which they should get good impressions, are grossly filthy. There is no other term for the unhealthy dirtiness which is tolerated. Every village and city through or past which the visitor travels is likewise a personification of filth and grime, and because of it is it any wonder that we find such impressions published abroad as those which we republish below from the pen of Mr. Victor Murdock, in the *Wichita Daily Eagle?* Mr. Murdock was here at the end of 1916, and, writing from Chungking, the best testimony of China which he could give to the outside world was that Dirt and Dishonesty predominate, and threaten the country even worse than Japan. Mr. Murdock is no ordinary, inexperienced man. He was at one time a member of the American Congress, is now a prominent Progressive leader in Kansas, and is the editor and proprietor of the *Wichita Daily Eagle*. What he says, therefore, carries weight in America, and it should be to the lasting shame of China in that men of standing elsewhere are able truthfully to write as he does in the following letter:

> If you put it to a vote in China the Chinese would declare their greatest enemy to be Japan. To the average informed Chinaman's imagination Japan is a dragon circling around China, licking its chops and trying to decide where to bite first.
>
> While I have come to know that Japan is laying for China, and I fancy the world is to have a great row about it and that the United States is liable to get into it, I don't think Japan is China's greatest enemy. **I put Dirt and Dishonesty in the first place.**
>
> Far be it from me to butt into a situation that is four thousand years old, with a bathtub and a bailing for reform. There are evidences a-plenty that China has managed to blunder along in the midst of filth for a long time. But she has survived a good deal as the buffalo on the prairies survived for centuries. There was no one around gunning for buffalo. China long was safe between a big ocean on one side and a savage continent on the other. Now the ocean has become a mere ditch pretty much at present the private property of an ambitious pioneer—Japan—and the savage continent is penetrated by a Russian railroad. Between them Japan and Russia contemplate doing various things to China, and China can come out of it something more than a vassal state if she will do certain things.
>
> **I can imagine nothing more auspicious for the future of China than the appearance of a leader, divinely inspired, who would discover means of putting down Dirt and Dishonesty.**
>
> I don't mean that he should entirely eliminate them, but that he should in a measure reduce them and bring them under a reasonable degree of control.
>
> There are other countries which are dirty. Some of the nations of Europe specialize in dirt, but no one knows what dirt is and what dirt can be until he comes to China. Some cities are cleaner than others, but they are all dirty, and the dirtiest defy description. Only in China does one comprehend what the hymn writer meant when he wrote that "every prospect pleases and only man is vile." I have always liked to look at people. When I wanted to enjoy myself I have always had recourse to taking a seat somewhere and just watching people. But in China I find myself hunting just plain, unadorned scenery for relief.
>
> It's the dirt that gets on your nerves. It bubbles up from the pavements and oozes out of the walls. It drips from the eaves and steams out of the earth. It stains the water they drink and streaks the food they eat. The clothes they wear reek with it and the beds they sleep in squirm with it. It greets the baby at birth and kicks the aged into the grave at the end. I could give particulars, but I won't, for *The Eagle* wouldn't get through the mails if I did.
>
> Now dirt means one thing—disease. Disease in China is rampant. There are no vital statistics in China, but some men are fairly good guessers. Dr. McCartney, who has been here for twenty-five years, told me to-day that **at least 75 per cent of the population dies in infancy. Dirt claims them as its own.** Dysentery is a monster in this part of China, It mows people down as a new-whetted scythe cuts sunflowers. Every white man in this part of the world wears a flannel band over his stomach at night in terror of it. About half the fellows say there is nothing in the flannel idea and the rest contend that there is, but they all wear them. Smallpox is as common as colds in Kansas. It is just as malignant among the Chinese as anywhere else and just as fatal, but the Chinese name it "the heavenly flower" and do not guard against it. White people vaccinate and keep on vaccinating and escape. Occasionally some white man comes along who doesn't believe in vaccination. He doesn't last long. The late American consul here, a young man from Connecticut, didn't vaccinate, and last spring he died a terrible death. Typhoid takes its toll also. The Chinese, who are in a measure immune, have a lighter form than occidentals, but the occidentals largely escape it by inoculation. Forms of eczema, cancer, and leprosy are frequent. Eye trouble is frightfully prevalent. Virtually everybody has intestinal bacteria, and hookworm among the barefoot is universal.
>
> I believe that if China lacks physical stamina that this tornado of disease is back of a lot of it. You see many splendidly built young people in China, but you find mighty few really old men, and the person over seventy is rare. They peter out before three score and ten.
>
> China is building up an army. It may drill them until the cows come home, teach them marksmanship and give them the best of officers but unless the population, from which the soldiers are drawn, is protected from disease the Chinese army in any serious contest isn't going to do very much.
>
> Now I am aware that physical stamina is also dependent on mental reactions and you could clean up China and yet not give her a capable army. **There is another thing needed in China, and that is for some one to rise up and baste squarely between the eyes a growing official dishonesty, which, unless it is curbed, will finish off the new republic without the necessity of outside help.**
>
> Traditionally Chinese have been commercially honest. There hasn't been much that is ethical about it. The Chinese merchant has been honest because it was the best policy. Officially the Chinese overlords in the past did pretty much as they pleased. They taxed the people and then gave up to the central government just as little as they dared. When the republic came in this system was continued, and a lot of people claim that it has grown more flagrant. In any event **there is growing up in China at a frightful rate a vicious system of "squeeze." It is plain embezzlement of public funds**, and it would not be so alarming if it were not progressive in its actions. The chief "squeezes" his government, the assistant "squeezes" his chief and the employee "squeezes" the assistant. Now graft isn't any particularly new thing in the world, and China isn't the only country in the world with the problem on her hands. But the thing has reached a stage in China where **unless it is checked in official circles, it will tear down the fabric of the nation itself**, for it will eventually permeate the whole population. Under steady practice it legitimatizes stealing and capitalizes the joy of larceny.
>
> For the "squeeze" as it is developing in China is not the mere creature of avarice alone; it is in part the product of a cunning desire to do the other fellow up and to luxuriate in the thought that you have stung him good and hard. As between equals, as in a horse trade, the game may not be particularly demoralizing. If the other fellow gets the spavined nag off on you, it is your lookout. Between a superior and a subordinate the practice becomes vicious, and will as readily wreck a nation as it will a firm or a family.
>
> An appalling number of people in China recognize "squeezing" as legitimate and defend it. They expect their servants to squeeze, and consequently they participate in the squeeze themselves by underpaying the servants. For instance, a man has a head servant who has four assistants, which assistants have each six subordinates. The head servant will withhold 10 per cent of the assistants' wages; the assistants will withhold 10 per cent of the subordinates' wages. If the man decreases the wages it will drop to 5 per cent. The squeeze increases in percentage with amount of money in sight. The practice starts with the official class. **It is tearing down national confidence, and unless it is stopped it will wreck China.**
>
> Early America stopped counterfeiting by making the penalty death. A few heads of high officials lopped off would probably put a stop to the "squeeze" in China. In all events, it would moderate it.

HANKOW COTTON MILL

The British Consul General at Hankow reports:—The British firm which secured the contract for the equipment of a large cotton spinning mill now in course of erection at Wuchang for a Chinese syndicate styled the "Hankow No. L Cotton Mill Company" has kindly supplied me with the following particulars concerning the enterprise:—

The capital of the Company, amounting to two million dollars, has already been fully subscribed. The machinery for the spinning mill, which will be equipped with 40,000 spindles, is to be of the latest pattern and is being supplied by Messrs. Asa Lee & Co. of Oldam, who are also supplying the accessories and mill gearing. The mill is to be electrically driven, power being obtained from the Wuchang Electric Light Company. It was found to be impossible, under present circumstances, to obtain the motors from England, and the order has accordingly been placed with the Westinghouse Company of America.

In addition to the spinning mill a weaving shed will also be installed. The contract for the supply of the machinery, comprising 500 looms and other equipment, for this section of the mill was secured by an American firm. The mill will be fitted throughout with a "Grinnell" sprinkler system supplied by Messrs. Mather & Platt.

The construction of the buildings, for which Messrs. Hemmings & Berley are the architects, is already well advanced and should be completed within the next few months. There have, however, been unexpected difficulties in obtaining the machinery and the equipment of the mill will consequently be greatly delayed.

CHINA BREAKS WITH GERMANY

After Threatened Political Turmoil Cabinet and Parliament Agree to Sever Relations with the Teutons

The progress of events, since the despatch of the Chinese Government's note of protest against indiscriminate German submarinism on January fifth, has made Peking the centre of a diplomatic conflict in the fields of both international and domestic affairs, which threatened not only to wreck China's newly-developing foreign policy but also to plunge the country into chaos. As matters stand, it is very difficult to trace clearly the whole trend of events and opinions, but they have certainly been of a character which should be highly satisfactory to the European Allies, somewhat disconcerting for Japan as her press has evidenced, and not at all satisfactory to the Germans.

Li Yuan-hung, President of China

The arrival of the Cabinet at a definite decision to sever diplomatic relations with Germany, the Parliamentary support of this step, and the unanimity existing between all the important political parties and political leaders, with the bare exception of a few irresponsibles, promised a speedy fruition of all the conferences, the telegraphic correspondence, the strenuous labors of advisers, diplomats, and interested parties of all classes, when the opposition of President Li at the Cabinet meeting held on March 4, brought about the Premier's resignation, his immediate departure for Tientsin, and all the consequent uncertainty and doubt which cloud the situation. But for this unfortunate *contretemps* China would much earlier have been in line with America, having committed herself to a definite policy, and it would be possible to trace more concisely the influences which have been brought to bear upon the heads of the Central Government during the past few weeks as well as China's future status in this all-embracing conflict.

The four weeks which have elapsed since the drafting of China's note to Germany have been devoted to more serious and sober discussion and thought than the Chinese official class has indulged in during the whole previous period of the European war, and the result has been an amazing number of conversions, a number which has increased daily in geometric proportion, from the pro-Teuton attitude to the anti-German position. After the delivery of the note Premier Tuan Chi-jui appeared before a Parliament that was inclined to stand upon its dignity and adopt an inquisitorial, if not an antagonistic, attitude, and was cross questioned about his right to despatch such a note and his justifications for doing it. On that occasion he promised the legislative body that no further steps would be taken without its approval and authorization. A goodly percentage of the members thought at that time that the move had been unwarranted, ill-advised and decidedly rash. The German propaganda had instilled into the minds of these representatives, as it had into the minds of the executive leaders of the nation, the conception of an invincible Germany, with a long memory for offences, and a heavy hand for the avenging of such offences. China was thoroughly imbued with these ideas and at the time of the publication of the note there is no doubt that a majority of the military and civil officials throughout the Republic thought it decidedly unwise and wished that it could be undone.

The day of Premier Tuan's appearance in Parliament, however, the first society for the discussion and study of foreign diplomatic relations was started. First it was called the Diplomatic Support Society, and then, to appeal to a larger membership, the Diplomatic Discussion Society. That same day the Neutral Affairs Bureau, theretofore a most inactive and tranquil bureau, was instructed to make itself active, to gather all the useful information and reliable opinions available and to make use of such men as Lu Cheng-hsiang, Wang Ta-hsien, Sun Pao-chi and General Ying Chang when information or advice were required. At the same time the Premier notified the provinces that he was about to call a National Defense Conference, and summon delegates so that he might instruct them in the intricacies of China's international relations, and win, through them, the support of the Provinces.

The guilds and Chambers of Commerce, which took an immediate interest in the situation when the possibility of severing diplomatic and commercial relations became imminent, after ruminating upon the matter for some days, decided that their investments in German enterprises were in serious danger and murmured loudly against the policy which affected them so vitally. Unofficial reassurances were published on the 15th of February which silenced the merchant class most effectually in the north, and brought from them pledges of their support of the Cabinet policy together with words of caution.

The growth of the Diplomatic Discussion Society and the rapid conversion of high officials, military as well as civil, to the anti-German attitude, prompted a group of chronic dissenters, under the leadership of Ex-Minister Sun Hung-yi, and the leaders of the Yi Yu, Ping Cheng, and Taoyuan parties, to start the Foreign Relations Discussion Society, for the purpose of opposing the government's policy. Coincidental with this step there came a protest from a group of extreme radicals, under the leadership of Li Lieh-chun, Tan Jen-feng, and Chang Ping-ling, against the policy outlined in the original note to Germany and opposing any further steps of a character hostile to Germany.

About the 15th and 16th of February foreign press comment upon the note, telegrams from Chinese diplomats abroad, and the first official movements on the part of the Allied plenipotentiaries in Peking, were published and served vastly to encourage the Cabinet and the political leaders who were working with the Cabinet in the shaping of their policy. As the pro-German element shrank to a minimum in responsible official circles it became possible for the leaders of the various diplomatic societies in Parliament to approach each other and discuss the whole question of foreign relations with a view to greater harmony. This domestic diplomacy resulted in an amalgamation of the various societies on the 18th of February, pledged to assist the Government and to support its policy when definitely shaped. At this time the Central Government telegraphed to Minister Yen at Berlin instructing him to remind the German Government of the note and ask for a reply. The reply, unofficial as it was, came the next day. China was told that there would be no change in Germany's programme of indiscriminate submarine warfare in certain zones, but that every effort would be made to protect Chinese life and property. China was asked to regard the submarine policy as the result of Allied pressure, the resort of a nation driven to extreme measures, and the Chinese Government was assured that Germany would give no occasion for a breach of relations.

Conciliatory as this reply was, it was uncompromising, and as America had not taken the step of declaring war upon Germany, and seemed unlikely to do so in the immediate future, the Chinese Government was nonplussed for the time and did not make Minister Yen's communication public for some days. When the news leaked out, however, Parliament appointed a commission, headed by Mr. Sun Jun-tu, to inquire into matters and to confer with the Government upon the steps that were to be taken. A diplomatic commission, of which the Cabinet members, a number of advisers, and the leaders of Parliament were members, was organized by Premier Tuan the day the reply was received, and for many days it gave itself up to discussion and argument. The Parliamentary delegates called upon the President, the Premier, Dr. Wu, Minister of Foreign Affairs, and Vice-President Feng Kuo-chang (who had come from Nanking), and kept in close touch, and finally in close sympathy with the trend of their opinions. All the executive and legislative organs worked in exceptional harmony and when the Cabinet met on Thursday, March 1st, to come to a final decision, there was little discussion before it was determined that China should sever diplomatic relations with Germany. On Saturday a telegram to Chinese Ministers abroad was prepared, and President Li, who had opposed any breach of neutrality, but who had expressed his willingness to agree with the majority, was notified. The following day, Sunday March 4th, the Cabinet met at the President's Palace to obtain his official approval and his seal upon the documents. The Cabinet members, however, found him in a mood to object to too precipitate action by the Cabinet without his knowledge, and, in the argument that ensued with the Premier, it is said that he insisted upon his constitutional right to declare war and make peace. Premier Tuan made a brief, heated speech in which he said that as the head of a responsible Cabinet he considered that he had the right to Presidential concurrence in the unanimous decisions of the Cabinet and that as the President had refused to agree to the measures planned by the Cabinet, there was nothing for him to do but resign. Thereupon he left in a bad temper and went directly to the Chien Men Station, had a special car attached to a freight train, and despite the arguments of a host of high officials, who tried to dissuade him, among whom was Vice-President Feng Kuo-chang, he dictated his resignation to his secretary and departed for Tientsin.

General Tuan Chi-jui, Premier and Minister of War

The President, who learned immediately after the departure of the Cabinet members, that Premier Tuan's policy had the support of all the Parliamentary leaders, as well as the responsible politicians and chairmen of the diplomatic discussion societies in the capital, changed his mind and determined to authorize the despatch of the telegram abroad. His decision was too late to avert the Premier's departure and the only measure he could take was to send official delegates after him to request him to return to the Capital and resume his office.

Delegation after delegation left for Tientsin—members of the Cabinet, old friends, batches of Parliamentarians—all bent upon persuading the Premier to return, but it was not until Vice-President Feng Kuo-chang went down on March 6 that the Premier decided to alter his mind. He was then assured that the President would not again interfere with the Cabinet in foreign or internal policies, and so agreed to return to Peking that evening. On the 7th a conference of conciliation was held in Peking between the President and the Premier when differences were settled, temporarily at least, much to the great relief of all concerned in China's welfare, but to the chagrin of the Germans who saw in the political trouble an escape from the threatened breach of relations.

Throughout this period of debate and consultation the Allied Ministers and Charges des Affairs in Peking made no official representation to the Chinese Government until about the first of March, when the benefits which would accrue to the Chinese nation through participation in the war on the side of the Allies, were brought up. In the interviews which took place between the representatives of the Allies and various high officials in the Chinese Government, notable among whom was Lu Tseng-yu, Ex-Minister to Japan, the Chinese were given to understand, it is said, that the Allied governments would give most favorable consideration to a proposal for customs tariff revision, and also for suspension of the payments of the Boxer Indemnity for the period of the war. It is certain that the Allies, doubtless having adjusted matters with Japan, have found themselves at last in a position to appeal directly to the Chinese Government and encourage the Chinese to join the Entente. What effect this has had upon Chinese minds it is difficult to say. A strong faction, anti-German but suspicious of Japan, has been opposed to joining the Allies. because of the Japanese assumption that when China does join, it will be under the tutelage and direction of Japan, which would imply Japanese disposition of China's affairs at the peace conference. In fact official Chinese despatches from Tokio have made some such arrangement a condition to Japan's agreeing to China taking a place among the Allies. Nothing certainly would please the Japanese better and do more to relieve them of worries than firmly established Chinese neutrality. The possibility of China coming into the war on an equal footing with Japan and thereby gaining an equal voice in the disposition of former German colonies, naturally makes Japan anxious about Shantung, as the Japanese press has confessed, and nothing but strong pressure from the other Allied Powers would induce Japan to agree to such Chinese participation in the war except under the wing and the instruction of Japan. When the Japanese announce then that they have had conferences with the Allies, at which the Allies agreed to all their proposals, and that they are therefore willing to see China a member of the Entente, the Chinese very naturally look askance at the whole proposition and determine to move with America. The suggestions, emanating from Japanese sources, that in the event of China joining the Allies, Japan would take care of her foreign relations, police the German concessions for her, maintain "peace" in Chinese waters, place Japanese officers in charge of Chinese arsenals, and "advise" the Chinese government upon its active participation, do not encourage the Chinese. It is all too reminiscent of the events leading up to the extinction of Korea's nationality under the able manipulation of Premier Terauchi, then Japanese Imperial Resident at the Korean court.

German activities during this period of suspense have made little impression. The diplomacy of the German Legation took the form of entertainment at first, and later, according to popular report, of promises and pledges of concessions. The whole German propaganda during the past month has been one of conciliation. It is said that the Chinese have been offered the cancellation of the Boxer indemnity, the suspension of payment upon loans, and even of the removal of the Von Ketteler *pailow*, the stone arch erected by the Chinese by way of reparation for the murder of the German Minister in the Boxer Year.

During the few days following the reconciliations between the President and the Premier great activity was displayed by those working for China's entry into the group of nations opposed to German methods, and by the 9th it was arranged that the Cabinet should appear before Parliament, explain all that had been done, make known its decision to break off diplomatic relations, and ask for a vote of confidence.

On Saturday, March 10, the Cabinet appeared before both houses and after their statement was made discussion ensued. The House of Representatives came to a vote later that afternoon after a stormy debate, and upheld the Government by 331 to 87. The discussion by the Senate had to be postponed until Sunday, March 11, and about 5 o'clock they also voted in support of the Government by a majority of about 150. The significant feature of this voting is that it strongly supported the Cabinet against the appeals to the contrary of both Dr. Sun Yat-sen and Tang Shao-yi, the supposed leaders of the Kuo Ming Tang party.

Germany's Reply to China's Protest

Parliament having thus announced its view the break with Germany became certain, and it is curious that it was not until the House of Representatives had announced its decision that the German Minister handed the Government the following reply by Germany to the warning previously issued by China:

> "To His Excellency the Minister of Foreign Affairs of the Republic of China, Dr. Wu Ting-fang.
>
> "I have the honour to inform Your Excellency that I have this moment—7 p m. on March 10th—received instructions from the Imperial Government to transmit to the Government of the Republic of China the following:
>
> "'The Imperial Government is astonished to see a threat attached to the protest of the Government of the Republic of China against the blockade as recently declared by Germany. Other States have merely protested, but China, with whom Germany is on terms of close friendship, is of all States the *only* one that has added a threat to its protest. This addition to the protest is all the more remarkable, because China, not having any shipping in the blockaded zones, is not affected by the blockade.
>
> "The protest of the Government of the Republic of China refers to losses of Chinese lives through warfare. It must be pointed out, however, that the Government of the Republic has not brought one such case to the knowledge of the Imperial Government, and has not complained of the same. As far as the Imperial Government from its own reports has learned of the losses of Chinese lives, these have occurred only in connexion with Chinese who had gone to the front as labourers for digging trenches or for rendering other war services, thus assuming the character of combatants with all the dangers attached thereto. The Imperial Government has repeatedly protested against these shipments of Chinese for war purposes.
>
> "Germany has even during the war given to China proofs of her friendship; by reason of this friendship she is prepared to regard the threat made by China as *non avenu*, and she is therefore justified in expecting that the Government of the Republic will subject its standpoint to a revision. The Imperial Government, moved by the desire to consider Chinese shipping interests as far as possible, is ready to negotiate about the protection of Chinese lives and property in accordance with such special wishes as the Government of the Republic may have, but Germany cannot renounce the war of blockade, seeing that her enemies had already declared and are carrying through a relentless blockade on their part. Germany will thus meet China, whom she considers her friend, because she is firmly convinced that a severance of relations would deprive China of a real friend and involve the country in unthinkable difficulties.'
>
> "Having the honour to bring this Note of the Imperial Government to the knowledge of Your Excellency, I beg to state that I am empowered to negotiate about the safeguarding of Chinese shipping interests according to the wishes which the Government of the Republic may have, and I take advantage of this opportunity to renew to Your Excellency the assurance of my highest consideration."

Vice-President Feng Kuo-chang left Peking on March 11, as soon as it was certain that the breach of relationship with Germany would be supported by Parliament; and Parliament having accorded its support the Cabinet devoted itself to consideration of the varied aspects of the grave step they were about to take.

On the 13th it became known that the passports for the German Minister, etc., were ready and that the document announcing the rupture was prepared.

China's Reply to Germany

On March 14 the step was taken, the passports being handed to the German Minister about noon, accompanied by the following despatch from Dr. Wu Ting-fang, Minister of Foreign Affairs:

> "With reference to the new submarine policy of Germany, the Government of the Republic of China, actuated by the desire to further the cause of the peace of the world and to maintain the sanctity of international law, addressed a protest to Your Excellency, on February 9 and declared that, if, contrary to its expectations, its protest was ineffectual, the Chinese Government would be constrained to sever the diplomatic relations at present existing between the two countries. During the lapse of a month, no heed has been paid to the protest of the Chinese Government in the activities of German submarines, which have caused the loss of many Chinese lives.
>
> "On March 10, a reply was received from Your Excellency. Although it states that the German Government is willing to open negotiations to arrive at a plan for the protection of Chinese life and property, yet it declares that it is difficult for Germany to cancel her blockade policy and, therefore, is not in accord with the object of the protest and the Chinese Government, to its deep regret, considers its protest ineffectual.
>
> "Therefore, the Chinese Government is constrained to sever the diplomatic relations at present existing with the German Government. I have the honor to send herewith a passport for Your Excellency, the members of the Legation staff and their families and retinue, for their protection while leaving Chinese territory.
>
> "As regards the German consular officers, this Ministry has instructed the different Commissioners for Foreign Affairs in the treaty ports to issue them similar passports for leaving the country."

On the afternoon of March 14 the Minister of Foreign Affairs invited the various Entente Ministers to meet him, when he explained the step that China had taken. The Ministers of neutral countries were also informed, and likewise the American Minister, who saw Dr. Wu, alone, after the other Ministers had departed.

Any further immediate step to be taken by China will be determined by the attitude of Germany and the future policy of America. If America does not go to war with Germany within a reasonable time it is likely that China will herself join the Entente against Germany.

ELECTRICITY IN FOOCHOW

Mr. W. J. B. Fletcher, British consul general at Foochow, reports:—The Foochow Electric Light Co. are increasing the power of their plant from 500 to 1,500 kilowatts in order to meet the increasing demand for light. The necessary machinery to a value of £7,500 has been purchased from the United States, delivery from England being impossible. This year the Company earned 40 per cent. on their capital; but paid a dividend of 13½ per cent. only, the balance being placed to reserve account or written off. Other small electric light companies are being formed with light Japanese plant at Chuanchou and Sien-yu. This Company also contemplates the construction of an electric tram line along the road from Nantai to the city; and also to purchase an icemaking plant.

Public telephones have been installed in various public centres of the city and Nantai. The German telephone in Nantai, operated by Messrs. Siemssen and Khrohn, having lost all its foreign subscribers, has become defunct. The Chinese telephone, which is operated by the Foochow Electric Co., is now used in its place.

STEAM NAVIGATION ON THE UPPER YANGTZE

Steam navigation on the Upper Yangtze—that is, above Ichang—is attracting more attention and is proving very profitable to the operating companies. For last year the Szechwan Steam Navigation Co., the oldest firm now operating steamers on this section of the river, paid a dividend of 40 per cent to shareholders and this on an operating year of seven months. This company runs the steamers *Shu-tung* and *Shu-hun*, both of which were built in Great Britain and have proven that it is possible to navigate successfully the upper river. Another ship, the *Ta-chuan*, owned by the Szechwan Railway Steam Navigation Co., is now successfully completing its third year's service. For the journey of 400 miles between Ichang and Chungking the cost of sending freight is from about $17 gold per ton upward, depending on the nature of the cargo, and baggage at the rate of 4 cents Mexican per pound. The cost of a first-class passage by the steamship *Shu-hun* is $80 Mexican for the up-river journey and $40 Mexican for the down-river trip. The up-river journey takes from three and one-half days in the case of the *Shu-hun* to five or six in the case of the other ships. The down-river journey is made in two days and passenger and freight rates are accordingly lower.

In July of this year the steamship *Lien-hua*, belonging to the Teh Yu Steamship Co., which is registered in Hongkong, made its trial trip to Chungking. On this run certain machinery defects were developed which necessitated its return to Shanghai for alteration and repairs.

In October the *Chu-chuan*, owned by the Szechwan Railway Steam Navigation Co., made its maiden trip to Chungking, accomplishing the journey in six days. This vessel is the same type as the *Shu-hun* and is almost as large. It is 190 feet over all, 30 feet in breadth, draft when loaded 6 feet, and has triple-expansion engines of an estimated horsepower of 1,000.

The sister ship of the *Chi-chuan* is now en route to Ichang on its first trip. This vessel is an exact counterpart of the *Chu-chuan*.

Two ships, *I-chiang* and *I-chou*, are under construction at Shanghai for the Wanhsien Shang Pan Min Chiang Steamship Co. (Ltd.). These steamers are said to be about 130 feet long and will cost about $110,000 United States currency. It is not probable that they will appear on the upper river before next spring. Besides these ships the Standard Oil Co. of New York and the Asiatic Petroleum Co. have each one ship under construction at Shanghai. These ships, in all probability, will be devoted solely to the transportation of the products of the owners.

It will be seen that the prospects of a large increase in steamer tonnage next spring are good. In 1916 the three steamers, *Shu-tung*, *Shu-hun*, and *Ta-chuan*, did not resume their services until July, and later in the case of the *Ta-chuan*. This delay was due to political conditions. Next spring the steam navigation year should open with eight steamers on the Ichang-Chungking run, in addition to the vessels of the oil companies. Still further expansion is probable.

A steamer service between Chungking and Suifu has been maintained since the middle of the summer by the *Jui-yue*, a small boat. During high water this vessel went as far as Chia-ting Fu, on the Min River, about 300 miles west of Chungking. The *Yuan-chi*, another small steamer, has just arrived from down river for service above Chungking. Two other vessels, the *Ching-yue* and *Ching-an*, which had been operated in certain seasons both below and above Chungking, have been condemned by the customs authorities and probably will not again be seen on the upper river. Vessels plying above Chungking are operated under the inland waters navigation rules.

The next few years will undoubtedly witness considerable expansion in steam navigation above Ichang. It is expected that competition will reduce freight rates somewhat, but so long as navigation is attended with a considerable amount of risk, rates will remain relatively high. There are certain conservancy schemes under contemplation for the improvement of navigation. Were a sufficient sum of money made available for conservancy work, and such undertaken under the direction of expert foreign engineers, the navigation facilities of this section of the river could be greatly improved and probably made possible for 12 months in the year.

SHIPBUILDING AT HONGKONG

While the general activity in the shipbuilding world is reflected generally in the situation in the Hongkong yards, certain restrictions have hampered activities along some lines. Nevertheless the establishments at Hongkong have had a prosperous year, and present indications are that they will add materially to the tonnage of the Far East in the next few months.

Much of the activity in shipbuilding has been in the construction of vessels for the Singapore-Bangkok trade and for other similar services in that part of the world formerly maintained by German steamers.

One of the large yards (the Taikoo Shipbuilding & Engineering Co.) has recently completed one steel twin-screw steamer 250 feet long and one steel single-screw steamer 223 feet long for this trade, the engines in these vessels being of the usual triple-expansion type. The same yard has under construction two steel single-screw steamers 223 feet long for the Siam Steamship Co., two steel single-screw vessels 291 feet long for Jardine Matheson & Co. for the China coasting trade, and four single-screw vessels 270 feet long for Norwegian owners. The engines in all these vessels are of the triple-expansion type. All of these vessels are of the usual coast-trade type, with accommodations for a limited number of passengers.

The other large shipyard in the colony (The Hongkong & Whampoo Dock Co.) has recently completed the *Kajang* and the *Kamuning*, each of 2,077 tons gross and 1,400 indicated horsepower and the *Kepong*, of 1,910 tons gross and 1,400 indicated horsepower, for the Straits Steamship Co. (Ltd.), and the *Sunning*, of 2,550 gross tons and 2,000 indicated horsepower, for the China Navigation Co. (Ltd.) for its coasting trade. This yard now has under construction the *Suiyang*, of 2,550 gross tons and 2,000 indicated horsepower; the *Woosung* of 3,450 gross tons and 1,800 indicated horsepower, both for the China Navigation Co. (Ltd.); and the *No. 167* and *No. 171*, of 6,200 gross tons and 3,500 indicated horsepower each, for the Blue Funnel Line (Alfred Holt & Co.) These vessels also are of the usual coasting type.

Both of the two large concerns above mentioned and all of the smaller shipbuilding concerns of the colony have had an unusual amount of smaller work in the construction of seagoing launches and tugs, lorries, barges, yachts, and similar vessels. The remodeling of several large vessels has been completed.

A large part of the materials for all vessels constructed in Hongkong at present comes from the United States. Much of the work at times has been delayed because of a lack of materials, but in general conditions are being remedied.

PROPOSED SILK FACTORIES

British Consul-General at Nanking Mr. Bertram Giles, C.M.G., reports:—The Provincial Assembly has proposed to establish at Soochow a silk-weaving factory on a large scale, the total cost, estimated at $500,000, being spread over the three years 1916-1918. The scheme was to be broached in 1916 with the introduction of handweaving, followed by power looms in 1917, the whole factory to be in complete working order by 1918. It was also proposed to start a hand silk-weaving training establishment in Nanking—the home of silk and satin weaving. There seems little prospect, however, of these schemes being brought to fruition.

THE CARPET INDUSTRY OF CHINA

[By Rodney Gilbert]

The Tientsin carpet was not originally prouced in Tientsin but in a half-dozen big cities n the Mongol border, near the wool-producing reas between the Gulf of Chihli and the Pamirs. The best native rugs are not now roduced in Tientsin, and the bulk of the commercial output probably comes from points further inland, but the term "Tientsin arpet" serves to describe a native manufacure, which has been well known to foreign coast-dwellers for many decades, and which as only recently risen from the humble status of a native craft to that of an industry.

War conditions have given Chinese rugs a value and a reputation abroad, which no amount of advertising and energetic salesmanship could have given them in so short a period. The export of Turkish rugs is at a standstill and the production and shipment of Persian and Turkestan rugs has been limited. The demand for Oriental rugs, especially in America, is great; so the last two years have brought to North China a host of rug-buyers, professional and amateur, who have given the humble weaver the occasion to branch out and enlarge, and have also enhanced his opinion of his own importance and the value of his work.

The Wary and Unwary

During the past year Peking has harboured more rug-buyers than one could conveniently count and for a time it was almost impossible to get the local weavers to undertake even small contracts, for the demand so exceeded the normal output that their looms were pledged for many months ahead, while the supplies of woollen yarn, the raw materials for dyes, and the available apprentices, were at a premium on the market. There was nothing to be bought; rug shops displayed nothing but ordered goods, and if one visited the dingy carpet-making quarter outside the Hatamên he was bound to encounter scores of rug enthusiasts, slipping surreptitiously in and out of dark alleys, prying into second-hand shops, and fleeing joyfully towards their hotels with scraps of tattered and filthy tapestry, for which they had paid astonishing prices. In those days one who wished to seem posted upon local affairs had to talk wisely of woof and warp, colour schemes and grades of wool, Chinese symbolism, rug-carving, rug restoration, and rug prices. Rug buying became the mask of those who had no tangible pursuit, while the patient army of appointment hunters, would-be advisers and others of their ilk, took up the popular trade to pass the weary days.

Several months ago, however, elimination set in. Those who had bought without a knowledge of prices, those who had bought without a knowledge of wool and native dyes, those who had not considered the American taste in designs, and those who had not bought at all because they could find nothing to buy, quietly left the field, while those who had exercised judgment, those who had experimented with wool, dyes, and the idiosyncracies of native weavers, and had learned what was wanted and how to have it made in Peking, proceeded to monopolize the foreign connexions and to develop the carpet industry.

The Craftsman's Art

Among the Chinese, Ningshia carpets are considered the best and Peking carpets second best. Other cities which have acquired reputations for rug-making are Tientsin, Salachi, Hami, Kuchar, Khotan and Kashgar. There is no great art in the manufacture, except from the Chinese viewpoint of design in which the European of a commercial bent is not vastly interested, and rugs are judged by the quality of the wool and the permanency of the dyes, rather than by the skill displayed in the weaving. As a matter of fact the Chinese rug, like most produced in Asia, is not really woven but is tied, the most important mechanism in their structure being the fingers of the small boys who sit in a row and do the tedious work. There is a minimum of machinery in a rug-maker's shop, and anyone of fair intelligence and sufficient patience, could qualify as a rug-weaver when he had learned to tie the rug-weaver's knot. Upon a heavy wooden frame, reaching from floor to ceiling, is stretched a screen of cotton strings, the warp, like the strings of a piano. The master craftsman, who has a small pattern of the rug he wishes to make sketches the design in colour on white paper, according to the actual scale of the rug, and this big paper pattern is woven in and out of the strings of the warp. When it is in position the design is painted off on the warp with black ink, the pattern is removed and the small boys set to work tying knots and cutting string—building the rug, literally from the ground up—working in various colours as the pattern demands.

There is no real woof in these carpets, the only cross strands being the cotton "filler" which is run in loosely after each row of knots has been tied and pounded down. The knot-tier sits on a bench before the upright woof with a few primitive tools by his side, and with balls of the various yarns which he expects to use suspended behind him. He reaches back, catches the loose end of the blue, red, or green ball, as occasion requires, ties two strands of the warp together and cuts the yarn so that the two ends of his knot protrude towards him, forming integral factors in the carpet's pile. One knot tied, he takes the second string of the warp and ties it to the third with a similar knot, using the colour of yarn demanded by the pattern. When he has finished a row of knots he weaves in a length of cotton-filler and pounds down his work with a heavy iron fork which is thrust into the warp. A pair of scissors for trimming the pile and "carving" the design completes the weaver's mechanical equipment. There is no variety in the work and no change of position. Each workman takes a two-foot width of rug, so that on a carpet of exceptional width one may see as many as ten or twelve boys working side by side, all tying knots in unison, twelve hours a day, seven days a week, and for as many weeks as it takes to complete the piece upon which they are working. When they commence, their bench is about eight inches from the floor, but as they progress their seat is raised, like a painter's scaffold, until their heads touch the ceiling. If one enters what seems an insignificant shop in Peking in this season of stress, he will find five or six big looms in each little room, with six, or eight, or ten, boys and men at each loom, turning out several thousand dollars worth of carpet to order without a word or a whisper.

Payment and Price

A rug six feet long by three wide, made of good material, is worth from eighteen to twenty-five dollars, and represents the incessant labour of a knot tyer who works 12 hours a day for 40 days, not to mention the yarn, cotton string, patterns and dyes used in the manufacture. A skilled master weaver, who can design and superintend the manufacture of a rug may get as much as $20 a month, while the little apprentices, who do the bulk of the work, get their food, worth about $3 a month, and are grateful.

Rugs bought from the maker may be worth anything from 90 cents a square foot up to $4, according to the quality of the wool used and the closeness of the texture. In Peking a foot of rug may have anything from 80 to 120 strands, and the wool used varies from the softest and finest lamb's wool in carpets that are rather tapestries than floor rugs, through the expensive "jung," or under wool, to the coarsest of unpicked sheep's wool. The yarn which goes into the average carpet made for the market, worth say $1.40 a square foot, is surprisingly coarse and wiry and, if dyed brown, might be taken for hemp by the superficial observer. In Ninghsia, where the carpet industry has not yet assumed commercial importance, one finds rugs averaging 150 strands to the foot and made from wool as soft and fine as stocking yarn.

This is the "ti-t'an" *par excellence* among Chinese connoisseurs, and goes into the making of the saddle-bags and saddle-cloths of the wealthy. The wool which enters into Chinese carpets is grown in Mongolia and the yarn is spun by old men and idle women in the border villages. Each spinner strolls about with a wad of raw wool and a hand spindle and accumulates a ball of yarn by a mechanical twirling of the spindle while entering vigorously into the gossip of the day. As there is no shuttle used in the weaving of the carpets, so there is no wheel used in the spinning of the yarn. The Chinese rug is most literally hand-made.

An Everlasting Dye

The matter of the dyes enters largely into a Chinese appreciation of a rug. The Ninghsia dyes never fade, but gain in lustre as they age, and a twenty year old carpet, far from being worn out, has a silky brilliance and gloss, *which cannot be imitated.* The native dyes used in Peking, when properly set, will outlast the carpet, and nothing has yet been discovered in China which will bleach the rug without ruining the carpet, if the dyer has done his work conscientiously. Actual experiment has shown that it is possible to boil a new rug to shreds without boiling the dye out of the yarn.

Each rug-maker does his own dyeing to match the colours in the design submitted to him. At one dyeing he makes enough to finish the carpet so that there can be no possible variation in shade, and he has his whole supply of the various colours dyed, set, and dried, ready for the client's inspection, before he sets his men to work on the loom. Native herbs, woods, and seeds, enter into the dye-making. Minerals are used sparsely, and a conscientious rug-maker eschews aniline. Their blue is indigo, the "imperial yellow" is made from the blossom of a species of locust tree, which also yields black. Brown comes from a kind of acorn husk, purple from hollyhocks, and yellows, reds, greens, and other shades from various native woods, mostly cheap and abundant.

For the most part there seem to be no prepared extracts for the dyer's use. He takes as much dye wood or seed as his judgment prompts him to use, throws it into a great pot of boiling water, and when the liquid takes on colour throws in the yarn and sets a man to stirring it. The fixing of the colours is done with alum. A rug made of yarn dyed partly with the native vegetable dyes and partly with aniline dyes, fades in streaks and patches, and betrays itself in a few months; but the colours in a well dyed Peking rug temper evenly and bear any amount of washing. Strong soap and water have no more effect on a good rug than they have upon a good handkerchief and often make a surprising difference in the ornamental qualities of a carpet that appears hopelessly old and dirty.

Designs and Experiments

The buyers who have succeeded in selling Chinese carpets abroad are those who have learned how to persuade the natives to use the shades and designs which they draw for them. Chinese taste in these matters is limited, although there is no limit to the variety of design and shading which can be worked into a rug. The Chinese weaver, working on his own behalf and for a native clientele, adheres rigidly to the symbolic and conventional figures which play so large a part in Chinese architecture, painting, and sculpture, and delights in primary colours. If he is allowed to experiment for himself in what he conceives to be "foreign" designing, he produces something ghastly. Yet it is as easy for the humble knot-tiers to follow a new pattern as an old one, and the native dyes yield themselves to every conceivable blend. Those who have taken the pains to experiment a little with native dyes have readily produced a long range of shades and tints which the Chinese carpet-weaver never dreamed of, and at the same time have adapted Chinese designing to foreign taste in a way which has revolutionized the rug output. In a Chinese design there are the old familiar mystic characters, the fly-brushes, wheels, oranges, pomegranites, flowers, phœnixes, lions, tigers, storks, bats, and butterflies, always in the same positions and arrangements, and the same dazzling profusion. If it is a bird rug, it is an aviary. If it is a flower rug it is a hothouse; and if the rug-maker outdoes himself, he contrives to work a zoological garden, a horticultural show and a guide to Chinese mystic symbols into ten square feet of tortured woollen yarn. This sort of rug may sell abroad as a curio but not as a piece of furniture, and the Chinese carpet is getting too common in foreign lands and has come to be too well known as a standard floor-covering to pass as a curio in any large community. The recent carpet boom has made the Chinese carpet an article of trade and has given it the status of a useful and ornamental floor covering, and as such it must be made in good taste.

The successful buyers in the carpet centres of the north have realized this and have worked hard to impress their ideas upon the obdurate native artists, with the result that the Chinese, prompted by their infallible commercial instinct, are developing some perception of colour and arrangement as the foreigner sees them, and are relegating their old patterns to the dust bins. Education along these lines has not penetrated deeper into the interior than the metropolis, for the buyers, with one or two exceptions, have not yet found the interior markets sufficiently tempting to attract them beyond the zone of electric lights and upholstered furniture, but carpet-making within the range of their influence may be said to have entered upon a permanent and hopeful evolution, with its rise from a petty native craft to an industry which boasts more than a million dollars worth of rugs on the Peking looms.—*North-China Daily News.*

AMERICA EQUIPPING WORLD'S RAILROADS

That the steel mills of the United States are confronted with prospective orders from the Allied governments of approximately 1,000,000 tons, the bulk of which is intended for the manufacture of railroad equipment, has brought forth an interesting explanation of the big increase in foreign inquiries. This is made by Charles M. Muchnic, manager of the foreign department of the American Locomotive Company.

"While the Entente Powers," said Mr. Muchnic, "were supplied with enough railroad equipment to carry them through the early period of war, the terrific wear and tear caused by the transportation of troops and the conversion of practically all the equipment plants into makers of munitions exclusively have compelled the Allies, particularly France and Russia, to come to American manufacturers for large numbers of locomotives and cars, as well as rails and other railroad supplies."

Mr. Muchnic estimated that the total foreign inquiries pending, in addition to orders already placed, have a value of between $110,000,000 and $125,000,000. Besides France and Russia, Finland and Spain want large tonnages of railroad equipment from American manufacturers.

The American Locomotive Company's expert predicted that the foreign demand for railroad equipment from the United States will continue for at least a year after the end of the war. In the interim, he said, Belgium probably will be added to the list of Allied countries to enter this market as buyers of locomotives, cars and supplies, as the Germans wrought destruction of the railroads and commandeered much of the equipment when they entered the country. Germany must be driven out of Belgium and Northern France, however, before this new influx of orders will be felt, Mr. Muchnic said. Concerning post-bellum conditions he added:

"Within a year or two after the war is ended Europe should be able to provide most of its own equipment, but American manufacturers need not fear any great slackening in the foreign demand, because new markets are constantly opening up in South America, China and Africa. Sales to those countries, in my opinion, will prove to be an important offset to the loss of business that must necessarily follow a cessation of hostilities in Europe."

In addition to the unprecedented foreign demand for railroad equipment, domestic business, Mr. Muchnic said, has shown a big improvement during the past few months. With their record earnings the equipment companies are placing themselves in an excellent position to meet foreign competition after the war.

STANDARD OIL CO.'S TONNAGE

Large additions to the fleets of the several leading oil companies are regarded as reflecting the opinion of the leading interests that there will be a considerable expansion in the oil business in the next few years, especially at the close of the war in Europe. While the war has resulted in a greatly increased demand for gasoline, it has interfered with the marketing of other petroleum products, notably kerosene. The big market for kerosene is China and because of high ocean freight rates it has been impossible to get kerosene to the Far East at a price at which it could be marketed.

The Standard Oil Company of New York, which has been the leading factor in the development of the oil markets of China, is arranging to overcome this difficulty by building ships of large size for the Far East service. Three tank ships of 10,250 tons each are now being built. One will be launched in about a month and the other two early next year. In May of last year the first boat of this type, the "Standard Arrow," was launched.

The Standard Oil Company of New York operates the biggest fleet of the Standard group, its boats aggregating about 200,000 tons. The marine business of this company become so vast that it was found expedient about a year ago to operate it under a new organization, called the Standard Transportation Company. This company was incorporated in Delaware with a capitalization of $15,000,000. All of the stock except directors' qualifying shares, is owned by the New York company.

Standard Oil of New Jersey has in operation two score tank steamers, of a total tonnage of 170.200. It has under construction sixteen tank steamers of an aggregate capacity of 190,000 tons and a capacity of from 10,000 to 15,000 tons each.

The Imperial Oil Company, a subsidiary of the New Jersey company, operates several boats on the Great Lakes and on the Atlantic and Pacific Coasts, bringing oil from Trinidad and Peru to refineries at Vancouver and Montreal. The International Petroleum Company, a subsidiary of the Imperial company, has a few boats in operation.

The German and Italian subsidiaries of the New Jersey company run their own fleets but the German boats necessarily are idle.

Standard Oil Company of California operates a fleet of thirty vessels. The "D. G. Schofield" and the "Acme" are the largest, having a carrying capacity of 80,000 barrels each.

The other big marine transportation company in the Standard Oil group is the Anglo-American Oil Co., engaged in carrying the bulk of Standard Oil products between this country and Great Britain. During 1915, 75,000 tons were added to its total. It operates thirty ocean-going tankers of a carrying capacity of more than 1,300,000 barrels a trip.

TRADE POSSIBILITIES OF NANKING

The recently constructed railway lines are affecting the trade of Shanghai, Chinkiang, and Hankow in favor of Nanking as the aspirant for the dominating position on the lower Yangtze. The question of the opening of the port of Pukow was particularly solved on July 1, 1915, when the harbor limits of Nanking were extended to include the bund of Pukow across the river, thus placing the railway wharves under the jurisdiction of the Maritime Customs, and giving the port of Nanking the much needed facilities for handling direct foreign trade. Since the extension of the harbor limits a substantial bean and sesame-seed trade has been established here. The railway brings the products down to the river, where they are loaded on coast steamers and taken direct to their destination. This trade was formerly the monopoly of Chinkiang and Shanghai.

Another change in established trade routes is taking place in the form of drawing exports from the Tsingtau hinterland to Nanking and delivering imports via this new ocean and railway route, as ocean steamers can berth on the north side of the harbor the year round. This change will also materially affect Shanghai, which has heretofore been the emporium for this district.

The conservatism of the Chinese can no longer be regarded in this district as an obstacle to foreign intercourse. Instances are not lacking where the enterprising foreigner has arrived and found the Chinese merchants and people quite ready to do business; but, as in every country, success requires intelligent and diligent work. The obstacles to direct foreign trade are inadequate banking facilities, lack of commission merchants, and the hesitancy of the foreigner to enter the field, offering his products direct to the consumer. The first two obstacles named would be overcome by the removal of the third, for bankers and commission merchants will go wherever there is business.

The total direct foreign trade of China in 1914 was about $600,000,000, or over 85 per cent of the total trade of the country. The total direct foreign trade of the Nanking consular district in 1915 was about $3,800,000, or less than 10 per cent of the total trade of the district. This comparison throws light on the possibilities of a rapid growth in its foreign trade, in view of the new facilities for handling ocean-going cargoes at Nanking. As to its future possibilities, it may be successfully maintained that (1) this district is so located that it is destined to become a leading commercial center in China; that (2) its undeveloped economic resources and commercial potentialities offer a wide scope for discriminating investment of skill and capital; and that (3) its direct foreign trade can be increased, under normal conditions, by several hundred per cent.

KONGO SAN—THE DIAMOND MOUNTAIN OF CHOSEN

Cluster of Korean Peaks made Easily Accessible by Railway.

One of the latest additions to the itinerary of tourists in the Far East and one of the most beautiful scenic wonders of the world is the Kongo-san, known among foreigners by the name of Diamond Mountain, an extraordinary cluster of almost innumerable peaks in the east-central part of Chosen (Korea). It is part of a great mountain range forming the backbone of the Korean peninsula, and is about fifty miles in circumference, occupying an area of more than twenty-five square miles.

The peaks, reputed to number twelve thousand, are entirely formed of granite, and tower high in the air with dense forests on their sides and at their base. All the peaks are extremely rugged and grotesque in form, and it is impossible to scale most of them as they rise nearly straight into the sky, while their slippery rocky sides furnish no foothold. All these peaks are projections of a series of rocky ridges standing one behind the other like huge screens, which form numerous ravines and canyons through which icy water runs tumultuously down. These streams greatly contribute to the beauty of the mountain, as they rush down rocky ravines to form hundreds of roaring waterfalls and sparkling cataracts, later to form into placid pools.

Mountain Sacred to Buddha

From time immemorial the mountain has been considered sacred, as it is the centre of Buddhism in Chosen. When this religion was at the height of its prosperity, there stood on the mountain one hundred and eight monasteries altogether, all of which were built in the gorgeous style of the time. As Buddhism declined in Chosen most of these temples fell into decay, and many were destroyed by fire, never to be rebuilt. Still there remain between forty and fifty monasteries and most of them, though showing signs of age, are in a well-preserved condition, telling of the bye-gone days of glory. These are inhabited by monks and nuns who lead the life of hermits, spending their days in meditation and worship, and excluding themselves from the outside world. The names of nearly all the peaks, waterfalls, pools, and other places of special scenic beauty are derived from Buddhist terms, the name of the mountain itself being a derivation from the name of a Buddhist sutra. The legends connected with the mountain and all that it holds are also nearly all Buddhistic, and some of them are fantastically imaginative.

On account of its matchless scenic beauty and the superstitious belief that those visiting its sacred precincts would never descend into hell after death, tens of thousands of people annually made the pilgrimage to the mountain from all parts of the peninsula, and even from China. In more recent years, along with the decline of Buddhism, however, visitors to the mountain have steadily decreased until within the past few years their number has scarcely exceeded one hundred a year. Like other parts in Chosen, roads leading to it were entirely neglected, making travelling very difficult. Nevertheless the reputation of the mountain on account of its sublime scenery survived. Among the Koreans the mountain is held in great esteem. Just as the Japanese in speaking of Nikko say: "Speak not of splendour until you have seen Nikko," so do the Koreans in referring to this most beautiful place in their country say: "Do not discuss scenic beauty until you have seen the Diamond Mountain."

Foreign residents in the Far East also know the mountain by repute but on account of the former difficulty of travelling not many of them have visited it. It is curious to note that the first foreigner who went there and published a story of any interest concerning the mountain was a woman. This was Mrs. Isabella Bird Bishop from England. She paid a visit to the mountain as early as 1894 and gave a very interesting account of her experience. It is very probable that she was the first foreign lady who ever set foot on the sacred mountain. In the autumn of 1914, the Hon. Mrs. E.A. Gordon, an English lady living in Tokyo, visited it, but the writer understands that a few American ladies preceded her, Miss Katherine Wambold of Seoul having gone there as early as 1901. Not a few *foreign tourists of the sterner sex* have ventured to brave the discomforts of travelling to the mountain, yet it is doubtful if more than a dozen foreigners have visited it, for the writer has it from the head-priest of one of the monasteries in the mountain that he can count them on his fingers.

Visitors to the mountain are unanimous in their praise of its scenery. As might be expected there are many volumes written by Korean and Chinese writers and poets extolling its beauty in the most lavish way, but few seem to have ever succeeded in doing full justice to the grand and sublime sight presented by this unique mountain. In fact it defies description, and only those who have seen it can realize and appreciate its wonderful beauty. One of the Consul-Generals in Seoul, who visited the mountain in 1913, writes: "The grandeur of the whole aspect, the defiant construction of the mountain, the wildness of the towering peaks, the virginity of the primeval forest vegetation, the grotesque condition of the torrential ravines, the clearness of the cataracts, the iridescence and light effects in torrents and whirlpools—where are there their equals on earth?"

STONE BUDDHA SERENELY MEDITATES ON MUTABILITY OF PASSING HUMANITY

Mrs. Bishop is equally emphatic. Describing a route in the mountain she writes: "Surely the beauty of that eleven miles is not much exceeded anywhere on earth. Colossal cliffs, upbearing mountains, forests, and gray gleaming peaks, rifted to give foothold to pines and maples, ofttimes contracting till the blue heaven above is narrowed to a strip, boulders of pink granite forty and fifty feet high, pines on their crests and ferns and lilies in their crevices, round which the clear waters swirl, before sliding down over smooth surfaces of pink granite to rest a while in deep pink pools where they take a more brilliant than an emerald green with the flashing lustre of a diamond—rocks and ledges over which the crystal stream dashes in drifts of foam, shelving rock surfaces on which the decorative Chinese characters, the laborious work of pilgrims, afford the only foothold, slides, steeper still, made passable for determined climbers by holes, drilled by the monks, and fitted with pegs and rails, rocks with bas-reliefs, or small shrines of Buddha draped with flowering trailers, a cliff with a bas-relief of Buddha, forty-five feet high on a pedestal thirty feet broad, rocks carved into lanterns and altars, whose harsh outlines are softened by mosses and lichens and above, huge timber and fantastic peaks rising into the summer heaven's delicious blue. A description can be only a catalogue. The actuality was intoxicating, a canyon on the grandest scale, with every element of beauty present."

Mystery Shrouds History

Like everything else in the Far East the early history of the Diamond Mountain is shrouded in mystery. There is little doubt that the mountain was known even in China in very early ages, the name of the mountain being found in a Chinese book that appeared in the To (Tang) Dynasty (617-935 A. D.) Legend says that in the year 5 A.D. fifty-three Buddhas or monks came from India to Korea by sea and, settling on the mountain, founded the Yuten-ji (Yuchomsa), which is the biggest monastery on the mountain. This story is open to doubt, as the introduction of Buddhism into Korea from India occurred very much later, it being recorded in history that it took place in 371 A. D. It seems probable that some monasteries were founded on the mountain not long after and, as Buddhism steadily gained ground in Korea, became the centre of the religion in the peninsula. During the reign of King Popheung (513-539) of Sinla when Buddhism was very flourishing, the king, who was a great believer in it, showered favours on the monks on the mountain. By order of the king, people living around the mountain were forced to carry food, clothing, and other articles of daily necessity to the monks, so that even in years of famine they never suffered from want. King Syongmyong of Paikche (523-553) was also a devout follower of Buddhism and sent for skilled artizans and workmen from China to build and decorate temples, as well as to carve and cast images of Buddha. Altogether there once stood on the mountain slopes one hundred and eight monasteries. Pilgrims came to the mountain from all parts of the peninsula and even from China.

In the ages following, however, the influence of Buddhism gradually waned but there was a revival of the religion during the reign of King Seicho of the Yi Dynasty (1456-1468), as he embraced it with great enthusiasm, and the monasteries on the Diamond Mountain again received many favours from the royal court. The revival of the religion, however, was only short-lived, for succeeding kings found its influence detrimental to their political interests, and often persecuted its believers. Naturally the monasteries on the Diamond Mountain suffered. One after another they went to ruin, some never to be rebuilt; their inmates disappeared, and with them many of the treasures belonging to the temples were lost. Five years ago, when the new regime was inaugurated in Korea, there remained in the mountain but from forty to fifty monasteries and these were fast crumbling into decay. The new Government, with the intention of preserving historic relics of sufficient importance, took measures to protect them. The monasteries are now able to keep going and their inmates follow their profession comparatively free from worldly cares.

For the sake of convenience the mountain is popularly divided into two parts. These are Uchi (Inner) Kongo and Soto (Outer) Kongo. The former is the name given to that part of the mountain facing inland, while the latter is given to the part looking towards the Sea of Japan. Besides, there is Shin (New) Kongo, which is the south-eastern part of the mountain, the scenic beauty of this part being of recent discovery. On account of the difficulty of approach it is not frequented by general tourists, nor is there any particular reason for them to visit the place, for though it contains many places of great scenic beauty its scenery does not greatly differ from that to be seen either in Uchi or in Soto Kongo. The great majority of the monasteries are found in Uchi or Inner Kongo and it contains the best scenery in the whole mountain.

The Diamond Mountain is a great cluster of rocky peaks, said to number twelve thousand. Even should each of the numerous pinnacles all along the jagged summit of the ridge be counted as a peak, it is doubtful whether the mountain comprises so many peaks. The term "twelve thousand" is of Buddhist origin, being used in the sacred sutras to denote a great number, so that the term "twelve thousand peaks" should not be taken literally. Still there can be no question as to the great number of peaks constituting the Diamond Mountain. Of these the highest is Biro Ho (Piro Pong) with an altitude of 5,359 feet. It is extremely difficult to scale these peaks; in fact, some of them are too steep for ordinary tourists to climb. Still, a few of them are negotiable, Bogun Dai being the easiest. Nevertheless, a trip to the summit of this peak requires one entire day of strenuous work, the path leading up a deep canyon and finally out on to a sheer wall of rock, along which iron chains for nearly two hundred yards are fixed to give support to climbers. At the top there is a flat space affording seating room for a dozen people only.

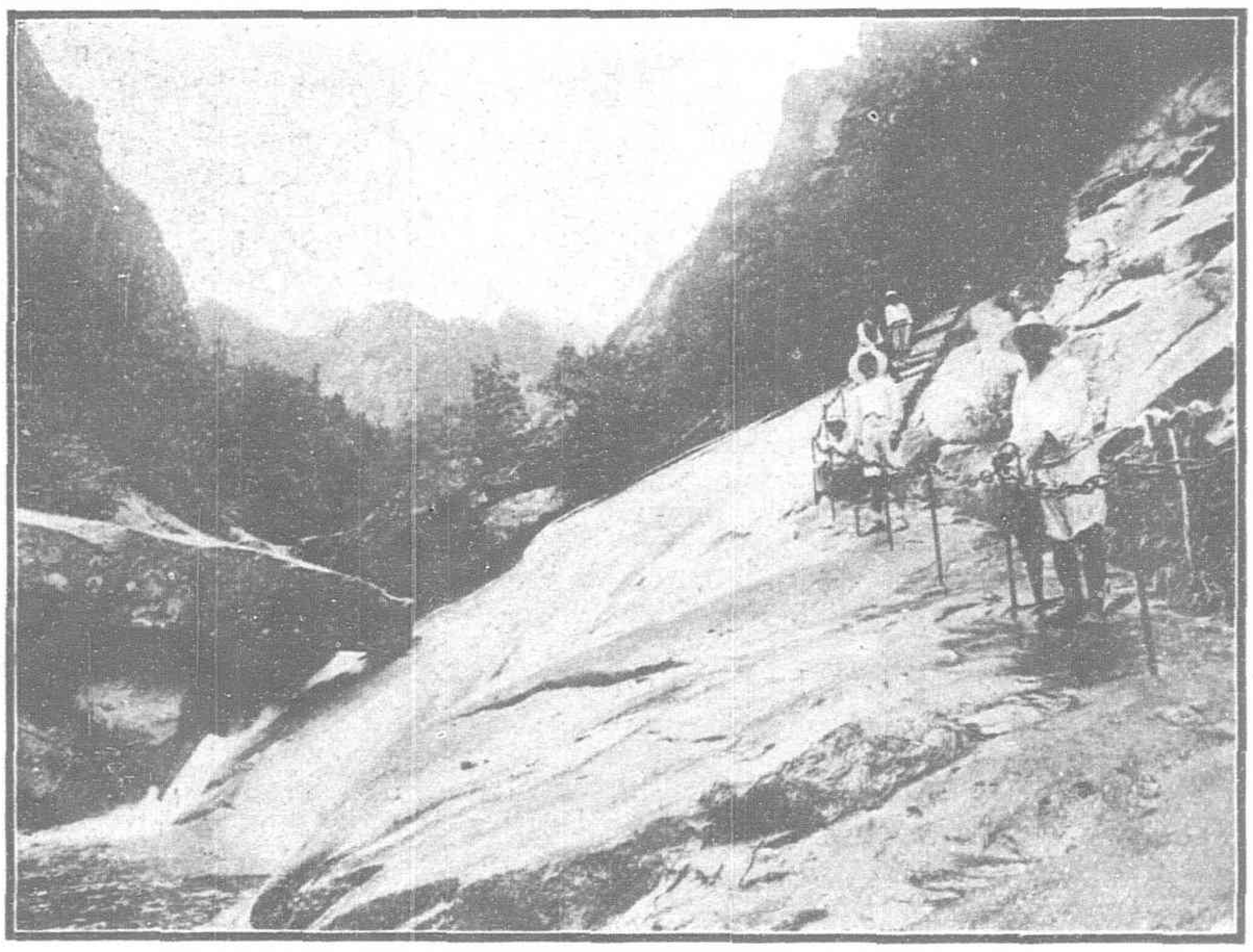
Hakuun Dai is another peak which can be negotiated. A foreign mountain climber who mounted the peak writes: "We made an early morning start and with hard climbing, principally up the narrow canyon, jumping from rock to rock and clambering up and up, saved from hundreds of falls only by the straw shoes we found indispensable; climbing and climbing, we finally got to the summit. The mountains and the hazy, floating clouds lay below us to the westward, and to the eastward lay the sea only six thousand feet below the great rock on which we sat, making as grand a view as one could ever hope to see. That ascent should be made only by good climbers, but it is worth all and more than the effort it takes."

Of the Diamond Mountain's forty or fifty monasteries, a few take the first rank and of them the largest are Yuten-ji (Yuchom-sa), Choan-ji (Chang-an-sa), Hyokun-ji (Pyohun-sa), and Shinkei-ji (Sinkei-sa). Each of these monasteries is composed of several fine temples and is the abode of monks exclusively, although nuns are allowed to live in some of the smaller monasteries. According to the latest census taken 443 monks and 85 nuns live in the monasteries and nunneries on the mountain. They are veritable hermits, having practically nothing to do with the outside world. Outside their monasteries they do not officiate at any religious functions such as funeral or memorial services, nor do they preach to the people or engage in propaganda work; much less do they take part in any social or philanthropic work. Throughout the year they remain in their secluded retreats and spend their days in reciting sacred sutras, in prayers to Buddha, or in devoting themselves to the practice of religious austerities. The particular sect to which the monks and nuns of the Diamond Mountain belong is the Zen sect, which requires from its followers the observance of celibacy. It is doubtful, however, if there are many monks strictly obeying this tenet, but they seem to follow to the letter the teaching to abstain from drinking, smoking, and taking animal food. The average Korean being a heavy drinker and great smoker, the habit of temperance practised by the monks is all the more praiseworthy. This, coupled with the warm hospitality they show to strangers, is their redeeming virtue, and, in spite of any shortcomings they may be guilty of, should entitle them to some measure of respect.

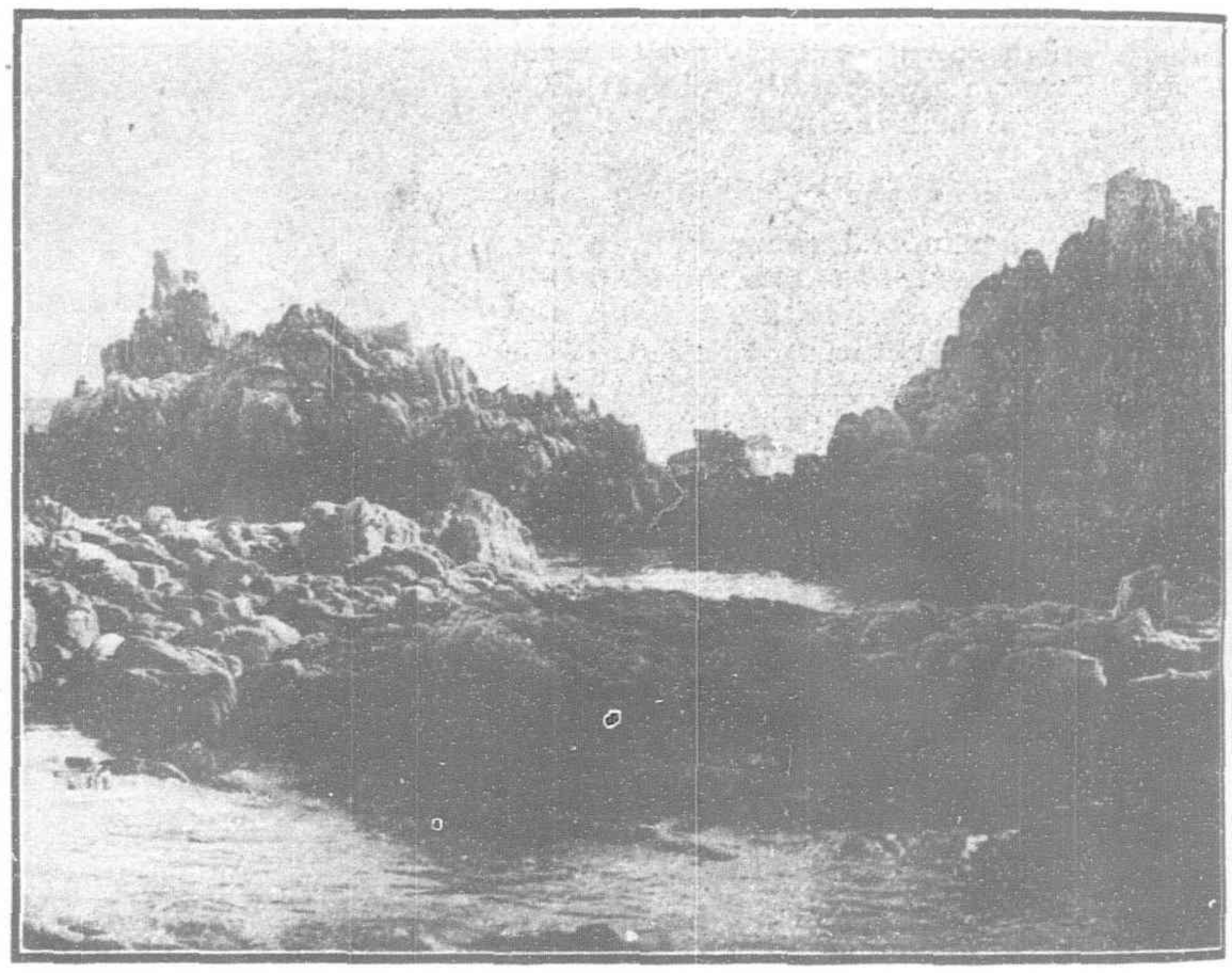
Most of the monks and nuns are grossly ignorant and superstitious. "They know," writes Mrs. Bishop, "nearly nothing of the history and tenets of their creed, or of the purport of their liturgies. Worship consists in the mumbling or loud intoning of Sanscrit or Thibetan phrases, of the meaning of which they have no conception. My impression of most of the monks was that their religious performances are absolutely without meaning to them, and that belief, except among a few, does not exist." This low estimate of the monks is true to-day, though in justice to them it must be said that some of the younger monks are beginning to awake. At Choan-ji are two young monks who are fairly well educated. One of them studied in a Buddhist university at Kyoto, Japan, and the other received his education in a modern common school.

Two questions may naturally be asked: How do the monks and nuns obtain the means of living, and how do they find their successors? The answer to the first question is that there are lands belonging to the monasteries which, lent out on tenancy, yield them fair incomes. Not all the monks and nuns, however, are supported by the monasteries; many live on the income they derive from their own properties or on the rice or money sent them by their relatives. As to the second question: How do they find their successors since theoretically at least they remain in celibacy? This is done by the adoption of orphans or children whose parents owing to poverty have surrendered them to the monasteries at a very early age. Visitors will see many little boys living in the larger monasteries undergoing education and training by the elder monks. There are also among the monks some who have escaped from the weariness and friction of the world and taken refuge in these retreats which afford them ample opportunity for seclusion and devotion.

The Diamond Mountain and its vicinity form a paradise for sportsmen. "I imagine that no region in the world," says Mrs. Gordon, who visited the mountain in 1914, "combines such magnificent scenery with such splendid sport—wild geese, pheasants, rabbits—and fishing, from the millions of tiny sardines, (whose silver bodies are seen drying on mats spread in the Korean sea-board villages) to mighty whales, three of which had been caught by three steamers on the day when I reached the little port where we spent the night." The British lady quoted does not mention bigger game to be found in the mountain, but if any Nimrod wishes to experience a more exciting pastime than shooting pheasants and wild geese, of which any number can be found in the forests and streams at the base of the mountain, he can certainly have it, for tigers and bears are not infrequently seen in the wild recesses of the mountain, while wild boar, deer, and antelopes haunt the region and may easily be tracked during the winter when the mountain is covered with snow and food is scarce. Such smaller animals as foxes, the racoons, and squirrels also live in the mountain in great number. It must be remembered, however, that hunting is not allowed except during the season, which begins on October 16 and closes on April 15 of the year following. No such restrictions, however, are placed on angling, so that disciples of Izaak Walton are likely to have the best time of their lives fishing in



Even the Good Monks must Walk in Slippery Places in Kongo-San



Outer Konco where Jagged Pinnacles churn incoming Seas into Foam

HIHO FALL AND BATHING POOL IN THE INNER KONGO

the streams in and near the mountain, as well as in the neighbouring sea. Especially will they enjoy angling in the streams, for these teem with trout and salmon. To the lovers of trees and especially to the admirers of Alpine plants the mountain will prove a veritable wonderland, its primeval forests containing great varieties of plantlife. Pine, cherry, and maple trees are in great evidence, but oak, birch, and a great many other varieties of trees are found too, as are also all sorts of Alpine flora.

Undoubtedly the best season for visiting the mountain is autumn, between the last decade of September and the middle decade of October. It is about this time that ideal weather for outings continues day after day in Chosen, and the whole mountain is ablaze with autumnal tints, presenting the most beautiful sight imaginable. Spring is also a good time, as cherry trees and azaleas abounding in the mountain are in full bloom between the last decade of April and the first decade of May. The fresh green of the leaves and the luxurious foliage of forests later to be seen are also delightful. Summer may not be bad for such tourists as are able to make a long sojourn, for it is delightfully cool in the mountain, but this season has the drawback of being rainy, especially at its beginning. When there is any long-continued rainfall, the streams greatly swell, making it almost impossible to cross them. In winter the mountain is rarely visited, for the reason that the streams freeze and the rocks and mountain sides are too slippery for passage. Thus during the three cold months, monks living in monasteries in the inner recesses of the mountain are entirely cut off from communication with the outside world.

There are three routes to the Diamond Mountain, two leading to Uchi (Inner) Kongo and the remaining one to Soto (Outer) Kongo. They are (I) the Sempo—Waiyo—Choan-ti route, (II) Heiko—Kinkwa-Shin-an—Choan-ji route and (III) Gensan—Tsusen—Chozen—Onseiri route. Routes I and II lead to Uchi (Inner) Kongo and Route III to Soto (Outer) Kongo.

The second route, about 36.5 *ri* or 89 miles long, though the longest in distance, is the most convenient of the three routes to the Diamond Mountain, for the road is wide and in an excellent condition, allowing the passage of automobiles and jinrikisha. By taking an automobile, tourists from Seoul may reach their destination in one day, but travelling by jinrikisha will require three days. The following table shows distances en route:—

BAMBUTSUSO OR "ASPECT OF MYRIAD THINGS" KONGO-SAN

Seoul—Heiko (by rail)	77 miles.
Heiko—Kinkwa	14 ,,
Kinkwa—Kinjo	14 ,,
Kinjo—Shin-an	22 ,,
Shin-an—Makkiri	31 ,,
Makkiri—Choan-ji	7 ,,

AMERICAN TRADE WITH CHOSEN (KOREA)

[BY U.S. VICE-CONSUL RAYMOND S. CURTICE, SEOUL]

The year 1915 was the most favorable in the history of Chosen's foreign trade, despite the adverse conditions prevailing in international trade in general. The reason for this successful trade year was the great increase, over 44 per cent, in the value of the exports of the country over that of the preceding year; its total exports, excluding treasure, for 1915 being valued at $24,671,924 and for 1914 at $17,125,616. Exports of treasure also advanced from $5,390,608 worth in 1914 to $5,858,553 worth in 1915. The country's total imports, on the other hand, declined in value from $31,491,807 to $29,510,879; those of treasure, however, increased from $151,490 to $405,055.

The increase in exports during 1915 can be largely accounted for by a "bumper" crop of rice and the increased export of hides and leather goods, caused by the large demands in Russia. Shipments of beans, cocoons, and ginseng also showed substantial increases, as the result of the activities of the authorities in promoting better crops in the country.

While the exports of gold ore, or gold and copper concentrates, showed a large increase during 1915 it is unlikely that the returns for 1916 will show any considerable amount in view of the establishment in 1915 of a large ore refinery at Chinnampo, under Japanese management. This refinery is now attending to the output of the mines that formerly sent their concentrates to the smelters in Tacoma.

Barley, wheat, live stock, and tobacco exports show decreases in value, but these were not sufficient to cause any marked effect on the large increases in other commodities. The exports from Chosen, mainly foodstuffs, are absorbed by the countries nearest at hand. Japan takes the largest share to feed its rapidly increasing population. China takes most of the remainder in ordinary years, although its proportion in 1915 was smaller on account of the large exports of leather goods to Asiatic Russia. Shipments to other countries are only occasional, there being no established export trade with Europe or America.

A new export item, leather manufactures, valued at $1,043,485, which indicates the establishment of a new industry in Chosen. Whether this industry will be able to continue its existence after the war is a problem, but there is a strong probability that with the large supply of hides available and by paying more attention to the quality of the output a permanent business may be built up in these goods, particularly in shoes.

The same influences that operated in 1914 to cause a decline in the value of the imports into Chosen continued during 1915, but the large rice crop of 1914 counteracted such influences to a certain extent. These influences were the disturbed economic conditions resulting from the war; the sharp fall in the price of rice, with the consequent decrease in the purchasing power of the people; the encouragement given by the Government to the promotion of home industries; and the fact that the construction of railways and harbors, improvement of roads, and other public works planned at the time of annexation (in 1910) were largely completed in 1913.

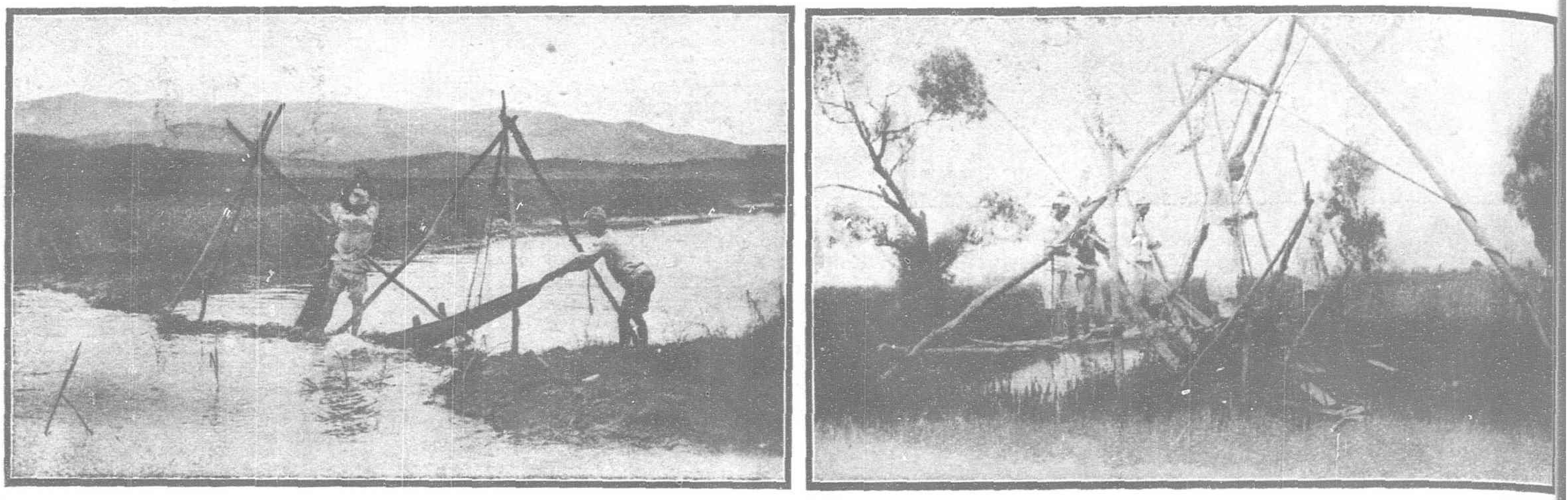
Aside from the natural limits to the contraction of a country's imports, as represented by its need of foreign goods, other factors that reduced the decline in imports were the large rice crop and the peculiar condition of the cotton goods market. The year 1913 witnessed a large overstocking of the local market for cotton goods, with the result that the figures for the imports of these goods during 1914 showed a decrease when compared with those for 1913, but this condition was remedied somewhat during 1915.

The total value of the principal imports into Chosen in 1914 and 1915 and the amounts sent by Japan, China, the United States, and the United Kingdom in 1915 are as follow

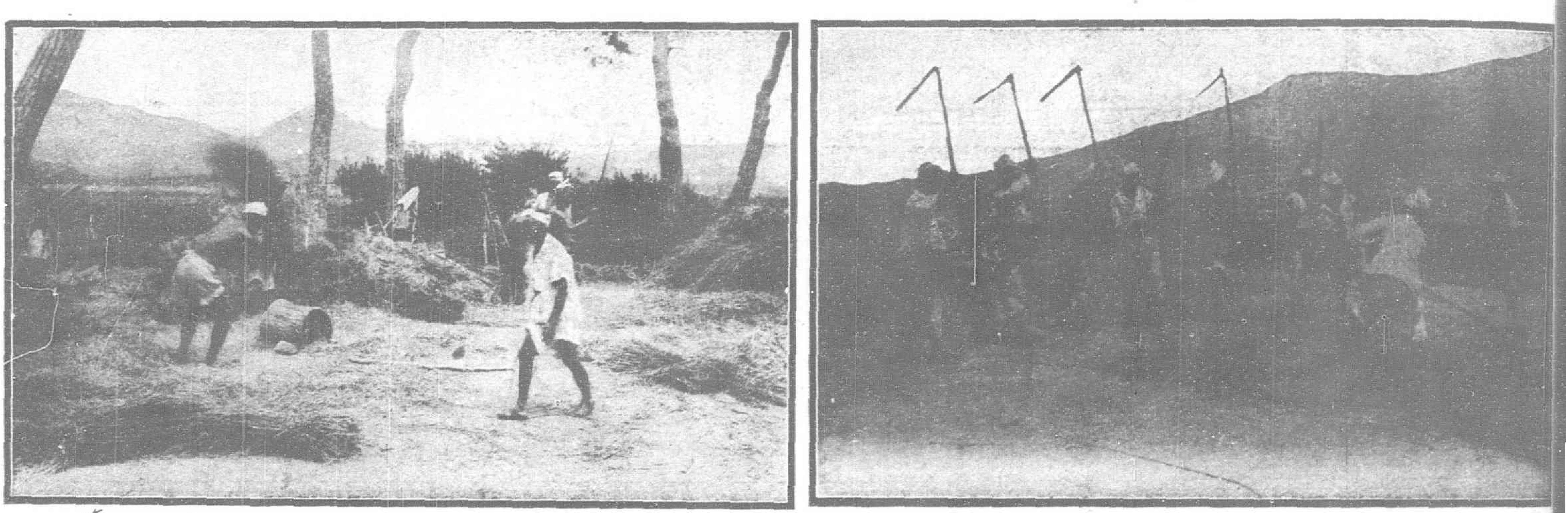
1914	
Total	31,491,807
1915	
Total	29,510,879
From Japan	20,997,856
From China	3,707,108
From United States	1,961,019
From United Kingdom	2,132,279

Imports from the United States.

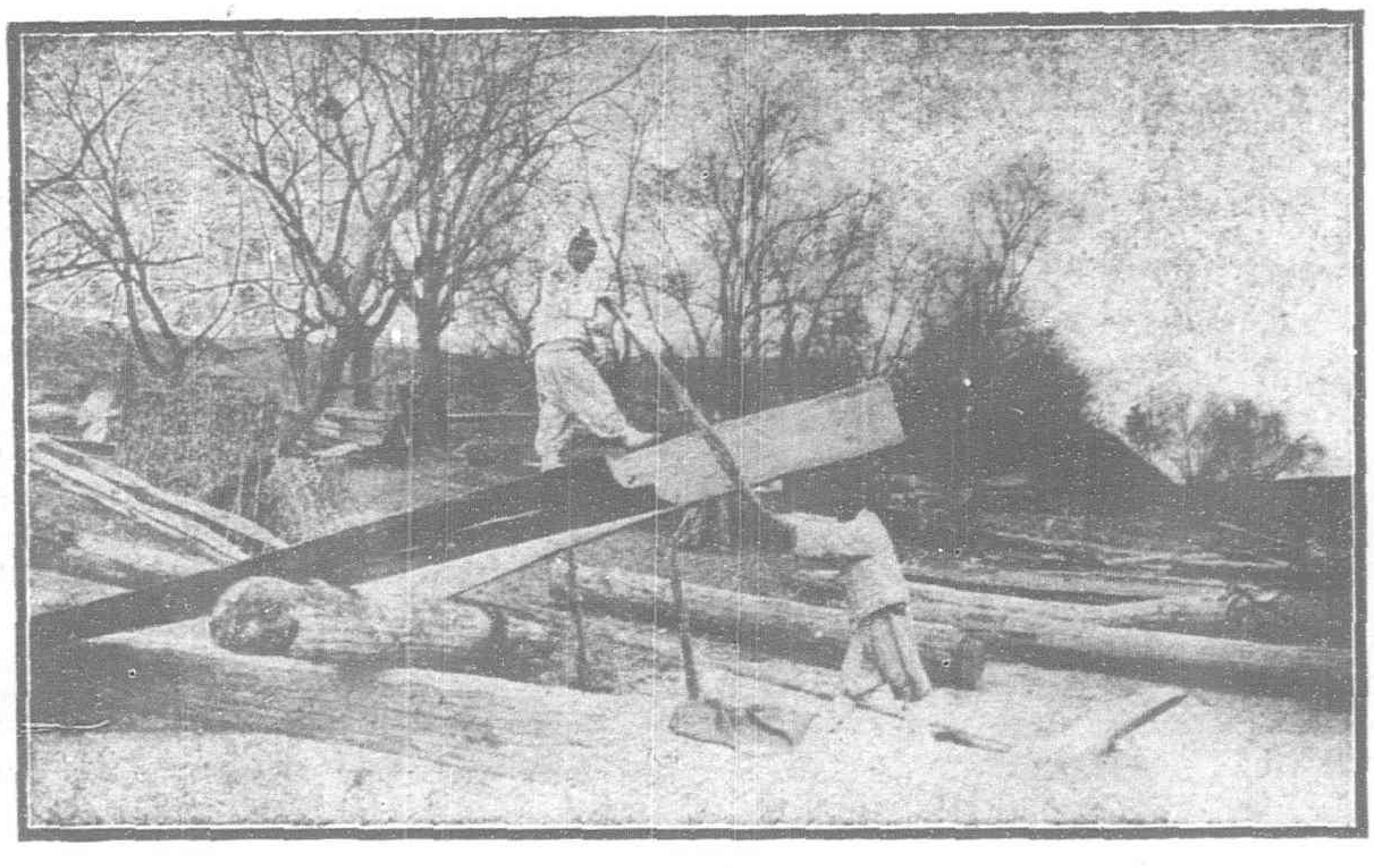
In 1914 some 68 per cent of the imports from America fell under the following headings: Flour, salted herring, kerosene, locomotives, materials for bridge construction, and general machinery. In 1915 the same items, substituting in place of materials for bridge construction the item rails and fittings thereof, formed the bulk of the imports from the United States, but the percentage was



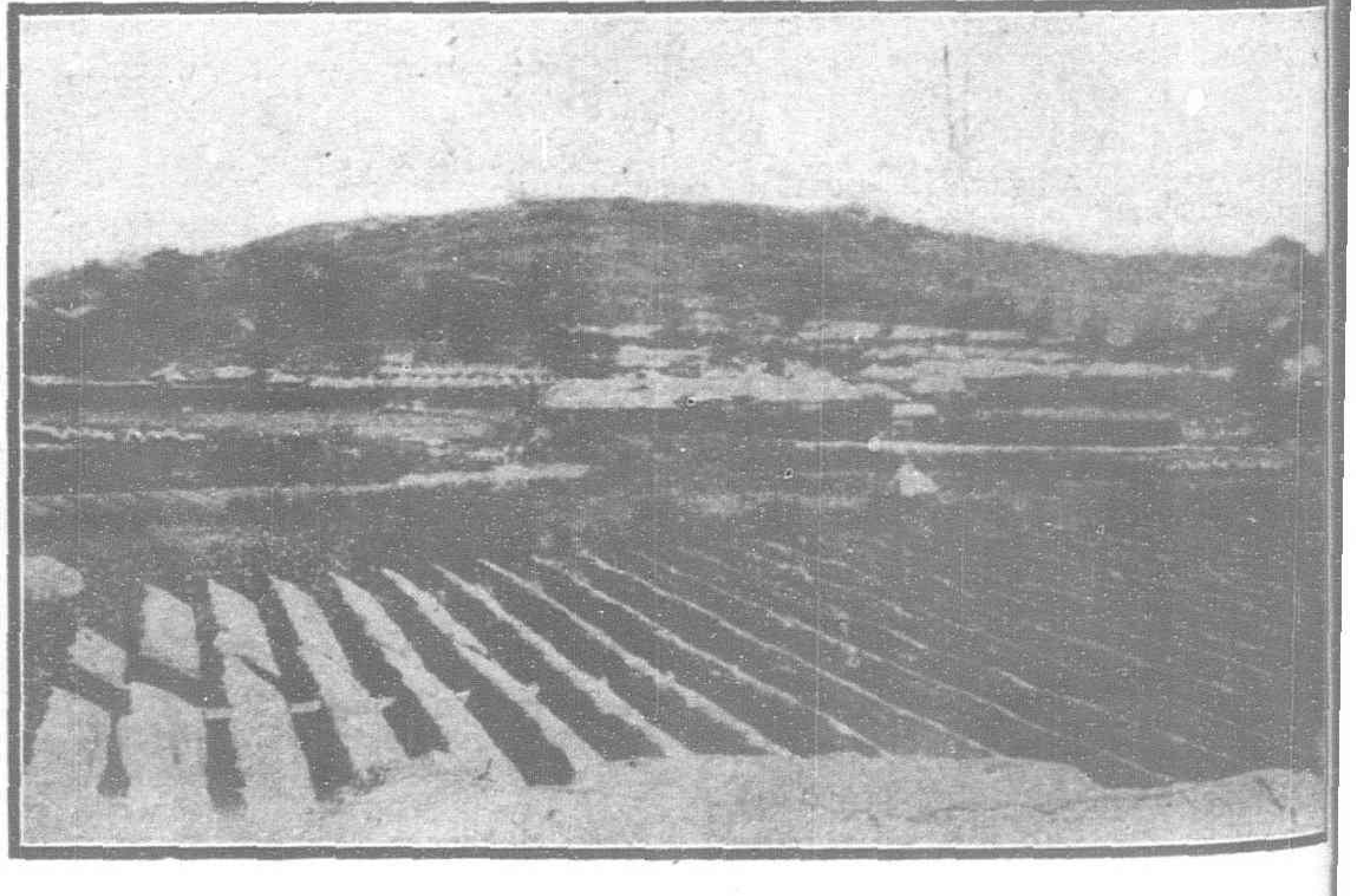
Irrigation in Chosen—Scoup and Tripod Method on Left Used only when Men are few or by Isolated Communities—The Water Wheel is a Community Affair



Two Methods of Threshing Rice—The Simplest is Beating the Grain over a Log but the Flail of our Grandfather's Days is more Generally Us



Sawing Timber on the Bank of a Korean River



Growing Ginseng under Straw Sheds

reduced in 1915 to a trifle more than 51, or, in actual figures, a loss of $995,680 in the trade in these items, as against a total decrease in the imports from the United States of $1,090,253.

As this loss represents practically the total falling off in the trade with the United States during 1915, as compared with the preceding year, it may be of value to refer to certain of the causes therefor. While the effect of the war prices induced American flour exporters to send their products east instead of west, this will not operate after the close of the war, and it must be remembered that meanwhile a thriving flour industry is being built up in Manchuria at the expense of the American producer. The salted herring imports are falling off by reason of the development of the local fisheries, which are now more nearly able to care for the supply of this article of diet. The decline in the receipts of locomotives is directly traceable to the Government policy of encouraging home industries. There was a general decline last year in the importation of general machinery, but the United States suffered but little more than its proportionate share. General imports, other than the items previously mentioned, maintained about the usual standard.

The question of the maintenance of American imports into Chosen assumes a position in considering the trade for 1915. The falling off of over $1,000,000 in that trade has already been explained; and from that explanation two prominent features stand forth—first that in order to maintain their trade with this country American exporters must continually pay attention to the field, for a trade once lost from whatever cause is almost impossible to regain; and, second, if the total amount of trade is to be retained, and, more especially, if the proportionate amount is to be held, new lines of trade must be opened as old lines are supplied more and more from home industries or from Japanese producers.

The first feature is best illustrated in the flour trade, to which reference is made in the section analyzing the import trade. The second feature is shown in the case of the salted herring trade and the imports of locomotives and rails. And not only are these conditions found adhering in the general trade, but the head of one of the most prominent American importing houses in Japan has stated that he finds it necessary constantly to substitute new lines for those that can no longer compete with the native product. Of course, certain of the staple lines, such as kerosene, will be the mainstay of the trade for some time; and yet it is necessary to emphasize the necessity of constantly creating new fields for American trade in Chosen.

During the first part of 1916 a largely increased demand for metals and machinery was found here, owing to the cessation of these imports from Europe, and it may possibly be that some part of this trade will be retained after the war. This is merely an illustration of how compensating increases in certain lines of trade may be found for decreases in other lines, and the growing diversity of the articles imported from the United States in more or less considerable quantities is an added indication of the same condition. The question of constant attention to this field, however, and the recognition of the necessity, if the trade is to be held, of being willing and able to fill its orders is the matter of prime importance.

Aside from the general opportunities in foodstuffs and other staple articles and in mining and industrial machinery, the openings for American skill and products in Chosen appear to be rather meager. The Government, wherever possible is insisting that its own contracts and needs shall be filled by Japanese products; and it is also restricting the fields and freedom of foreign enterprises as is only natural under the circumstances. The outstanding instance of this is in the mining industry, the more important part of which has been and still is under the control of American and British companies. By the new mining law that went into effect on April 1, 1916, new mining claims are limited to Japanese or Japanese companies (including Koreans and companies organized under the company law of Chosen). A way is left, however, in which foreigners may still acquire new claims, and that is by organizing a Japanese company. One such experiment is already under way and is being watched with interest.

Another form that American activity has taken is the method adopted by some large American concerns of starting their own factories in Japan under Japanese laws and also of absorbing other Japanese companies in order to control their business. This form of activity has been especially exemplified in the case of two of the largest American electrical companies. This method can not well be applied directly in Chosen as yet owing to the backwardness of manufacturing here, but the establishment of such factories in Japan has undoubtedly been a large influence in securing a certain amount of trade in Chosen in these lines.

CHINA'S BIG OPPORTUNITY IN THE SILK TRADE

As already pointed out in these columns, says the *Japan Times*, raw silk headed the list of increases in exports during last year and both sericulturists and reelers netted a vastly increased sum. This year, too, is expected by every one in the line of business to be similarly favourable, unless the restoration of peace brings on an unexpected reaction. Mr. Shido, one of the greatest authorities on the silk trade, takes this occasion to warn sericulturists and reelers in Japan that they should pay more serious attention to the development of the silk industry in China which must stand as a formidable rival of Japan's sericulturists some day. At present, says Mr. Shido, China can not rival Japan on account of the inferiority of her silk, though she ships every year more than 200,000 bales, which figure represents roughly 50 per cent of Japan's total trade. However, her future possibility is great; not only can she increase her output, but also can improve her output only if foreign experts give assistance. It is true that she has no expert of her own, and in spite of her long career as a sericulturist she has been unable up to present to part with her primitive processes of culture. But the situation in the world market will not allow her to remain so lethargic much longer.

Even now American silk men are trying to awake her sericulturists with a view to avoiding her utter dependence of Japan's supply as at present, continues Mr. Shido. So far America has bought very little of China's silk because Chinese silk is so imperfectly reeled that troublesome preliminary processes are required before it is used by weavers, but now that Europe is closed to China's silk all China produces must be disposed of in America, of which fact Chinese sericulturists are apparently well aware and according to a report to hand they are endeavouring in earnest to improve their goods. Thus a chance is being afforded to American silk men to carry out their plan. This plan of American silk men was first announced at the general meeting of the American Association of Silk Merchants held in New York in October, 1915. As soon as the plan was approved by all concerned, a practical movement was started for the improvement of reeling in China. China's Minister and Consuls were invited to the principal weaving centres to see how much their native silk could be improved. They were also requested to induce their home Government to establish some permanent plan for the development of sericulture in China. American merchants at Shanghai also supported this movement in the States by sending a representation to the Peking Government.

However, their movement did not assume such practical importance as seen now, until both Chinese and Americans understood the practicability of their plan on account of the result of Chinese sericulturists' spontaneous attempt at improving their goods. Some American silk merchants headed by Eagle & Company have already established a firm styled the Meiying Company at Shanghai. The new firm, observes Mr. Shido, will not only purchase silk in the interior for their own weaving mills, but will advance money to Chinese sericulturists wherewith to improve their filatures.

If the example be followed by American weavers, and Chinese reelers be awakened from their long sleep, not only Japanese enterprises in China will be affected seriously, but a formidable rival to Japanese sericulturists will appear to keep in check the progress of Japan's silk trade with America. This attempt on the part of Americans can be neutralized to some extent by the capitalization by Japan of the Chinese silk industry at this juncture when Japanese silk men have longer purses. Capitalists, sericulturists and export merchants should co-operate, the speaker goes on to say, for the achievement of this end, which is so important to Japan's welfare. Capitalists should finance freely native sericulturists in China, while sericulturists should assist Chinese operators in their endeavours to reform their operations, export merchants giving special facilities in disposing of the goods thus produced.

CHEFOO HARBOUR WORK

The following report on the work done in connexion with the improvement of Chefoo Harbour has been issued by the Engineer-in-Chief of the Chefoo Harbour Improvement Commission (Mr. C. Rickard):

Breakwater: Stone dumping has been continued on the first 1,800 ft. of the foundation, about 11,000 tons having been deposited in the half year. A length of 900 ft. is practically ready for the placing of the masonry blocks, and 600 ft. has the heavy stone protection on the slopes. The first caisson has been launched and completed, and was successfully sunk in its position on the prepared foundation at the south head of the breakwater in September, since when some 150 cubic yards of concrete and 100 cubic yards of sand filling have been deposited in it. Block-setting was commenced at the beginning of November, and 29 of the lower blocks have been placed in position. The making of masonry blocks on the West Beach was continued till stopped by frost about the middle of December, 569 large ones and 1,095 small ones, containing altogether nearly 11,000 cubic yards of masonry, being completed in the six months. The total quantity of blocks made to date is, large ones 30 per cent and small ones 95 per cent, of the total required.

Mole: Good progress has been made during the last six months with the underwater work. Some 250,000 cubic yards of good hard sand have been dredged from the northwest part of the bay and deposited in the mound. Over 62,000 super yards of brushwood zinkstuks have been constructed on shore, and sunk in position on the mole to form the foundation and protect the slopes of the mound; 1,000 piles have been driven, and 9,000 tons of rubble dumped on the zinkstuks. The construction of the caisson for one end of the quay wall has been commenced on the slipway at the Bluff, and 30 cubic yards of reinforced concrete have been deposited (in forming caisson). 133 blocks for the quay wall, containing 1,900 cubic yards of masonry, have been made at the west beach.

Plant, Materials, etc:—The jetty for loading large masonry blocks has been constructed and the trolly lines leading from the block-yard to the same have been laid and put into use. Some 1,300 tons of cement have been received on the works, also over 60 tons of reinforcing steel.

Staff:—An experienced Chinese diver has been engaged by the Commission to inspect the underwater work.

Weather:—The latter part of the summer and autumn were good, but pumping on the mole had to be discontinued early in November on account of the rough sea, and very little work of any sort could be done during December owing to the extreme cold.

ELECTRIC LIGHT AT MENGTZU

The electric light was turned on in Mengtzu on August 1, says H. B. M. Consul-General H. Goffe, C. M. G., in a recent report. This installation of British machinery, erected under Mr. Carpenter's supervision, is a complete success and has given immense satisfaction; incidentally it is a good advertisement for British machinery, as well as for Shewan, Tomes & Co., throughout the province. The plant is nominally for 4,000 lights and cost twenty thousand dollars at a relatively low exchange, the whole installation costing sixty thousand dollars. This compares very favourably with the German 12,000 light power plant at Yunnanfu, the installation of which cost nearly seven hundred thousand dollars. It is interesting to note that the contract for the Mengtzu plant was obtained before the war when the Germans were in a position to compete.

NEED FOR COAL AND IRON DETERMINE JAPAN'S POLICY IN CHINA

[By Thomas T. Read]

It is curious, but perhaps not unnatural, that nearly all the current discussion of the present national policy of Japan concerns itself chiefly with superficial aspects. It is worth while, therefore, to direct our thoughts toward underlying causes, to the end that we may distinguish between the veering flaws of circumstance and the trade winds of a definite policy.

When Japan first began to take her place among the nations of the world the leading statesmen, after due thought, decided on a policy the direct antithesis of that followed in the United States. Here national policy and national development are determined by more or less enlightened public opinion; the people lead, the government follows. Japanese statesmen determined that the government should lead and the people follow; that the people as a whole should think, desire, labor, and fight for the things their national leaders thought best for them. Probably such a policy could never have been carried out in this country, but, for reasons obvious to anyone at all familiar with the Far East, it was quite practicable in Japan and has been consistently followed with a fair measure of success. A discussion of the advantages and disadvantages of such a policy and an inquiry into the present indications of its eventual success would be of interest, but for the basis of this discussion it is sufficient to note the fact and then pass on to a consideration of the methods of its expression seen in current Far Eastern development.

Having determined that the government should lead, the next step was to determine the general direction of progress. Geographically Japan occupies much the same position in the Pacific as Great Britain does in the Atlantic and the statesmen of Japan at once hitched their wagon to the star of maritime and commercial leadership. But it soon became clear that something more than geographical position was required to realize this ambition. During the period of her rise to supremacy Great Britain was the greatest coal mining and iron and steel-making nation of the world, her success was founded on the possession of those natural resources on which industrial development is based. The United States and Germany have since outstripped her in the development of these natural resources and have, therefore, in a comparatively brief period, risen to the rank of Powers of the first magnitude.

Unfortunately Japan lacks these natural resources. Of iron ore she has none worth mentioning, and while her present coal production is considerable, it is rapidly exhausting the decidedly limited coal fields of the empire. Attempts were made to develop the iron and steel industry on the basis of imported ore and pig iron, but they were complete failures. Two decades ago the Japanese were possessed of a structure of national growth that had sprung up almost like Jonah's gourd, and bade fair to wither almost as quickly unless sustenance was provided for its roots in the form of iron ore and coal fields.

Across on the Asiatic mainland are abundant resources of iron and coal. It is true they belonged to the Chinese and Koreans, but neither showed any signs of putting them to use. Following the German philosophy that tools and resources rightfully belong to those who can best make use of them, the definite purpose of Japanese statesmen for the past two decades has been to so mold events that such portions of the Asiatic mainland as it required should eventually come into the hands of Japan. In this they have been singularly successful. Chinese ineptitude in Korea and Russian aggression in Manchuria furnished the necessary excuse for wars that led to the annexation of Korea and Japanese control of South Manchuria.

Thus a considerable part of the program was realized. With the control of the South Manchuria railway went the Fushun coal mine, with a seam of excellent coal 100 to 130 feet thick and eight miles long, now producing 2,200,000 tons per year. Japan forced China to allow her to build a railroad from Antung to Mukden and to permit the development of iron and coal mines along this line. It is true that theoretically these latter mines are jointly controlled by Japan and China (the Fushun mine is wholly under Japanese control) but the Chinese participation is little more than an amiable fiction, since the nominal Chinese capital has been lent by the Japanese, and the technical control is completely in the hands of the latter. In this way other coal mines have been developed, two iron blast-furnaces have been built and two more are projected at Penhsihu, or Konkeiko, as the Japanese prefer to have it called, where some 80,000,000 tons of 70 per cent iron ore have been developed. By a recent agreement Japanese have the right to develop mines in three districts of Kirin province, which adjoins Manchuria on the north. Industrial plants have been built; a Japanese firm is engaged in supplying electric power to the American-owned gold mines in northern Korea, and others manufacture sulphate of ammonia, coal-tar products, and all the many important substances that have their origin in coal.

In Korea iron deposits of much promise are being developed and several hundred thousand tons of iron ore are sent each year to Japan to supply the furnaces there that formerly had to depend on ore bought in China. This output is rapidly increasing and is expected soon to reach 1,000,000 tons a year, so the economic position has correspondingly improved.

Last year presented another opportunity for notable advance. By declaring war on Germany, Japan was enabled to attack and capture the German holdings in Shantung. No one has so far publicly commented on the tactics pursued by Japan in the seige of Tsingtau. Despatches from Japan at first stated that the attacking forces would land at a point but a few miles north of Tsingtau, but the strategy was soon changed to the occupation of Tengchou, which is on the opposite side of the peninsula and much nearer Peking, thus giving a reasonable excuse for occupying a wide extent of Chinese territory. From this point a military railway was built along an old canal bed and Tsingtau was soon captured. The railway leading from that port 250 miles inland to Tsinanfu, the capital of the province, was also seized, together with the coal mines at Fangtse and Poshan, on the ground that they were German enterprises. The nearby iron ore deposits at Tsinglingchen, containing 30,000,000 tons of 65 per cent ore, were also seized since the Germans had a concession to work them, and they are now being exploited by Japanese capital. It is reported that Japan will build a railroad from Tengchou to Tsinanfu, thus effectually throttling the Chinese port of Chefoo, and it is quite clear to anyone familiar with the facts that Japanese control of the province of Shantung is a *fait accompli*. In southern Shantung there is an even more valuable coal field that will find its natural outlet on the southeast coast of the province when a harbor is built there, and it will probably be only a question of time until Japanese capital will provide the harbor.

It is evident, then, that Japan has so far succeeded very well in possessing herself of enough of the coal and iron resources of her neighbors to supply her needs. This is not the whole story, however. If the Chinese were left in possession of their iron and steel works they would possess the means of eventually resisting Japanese aggression, so it was essential to pull the dragon's teeth. China has a large modern steel works at Hankow, in the heart of China, built by Chang Chih-tung for the express purpose of furnishing material for the arsenals and munitions factories of China, as well as furnishing rails and equipment for her railways. This was so wretchedly mismanaged by Sheng Hsuan-huai that although it developed rapidly it got further and further into debt. During the recent revolution it was partly destroyed and more money was necessary to put it into operation again. The management had committed the incredible folly of borrowing Japanese capital at various times in its career, and by 1914 it was evident that if it was not to pass into Japanese control something must be done at once. Strenuous efforts were made to secure American capital and the first vice-president of one of our largest steel companies spent several months in China looking into the situation, but eventually decided that the Japanese had so far got the upper hand that American capital would not be warranted in involving itself in so tangled a situation. It was then proposed that the Chinese government should furnish the necessary money but the government had no money to furnish, and the inclusion of the Japanese control of these works in the demands of May, 1915, set at naught the last Chinese hopes. We have now before us the pathetic and even ridiculous spectacle of steel works built for the military protection of China passing into the control of the only country from which China need fear military aggression. This summer a Japanese company secured a concession for the iron-ore deposits at Taochang, Anhwei province, reported to contain 60,000,000 tons of 65 per cent ore and they already had the concession for the large deposit in Fukien, near Amoy, so the Chinese are now blocked from a new enterprise elsewhere.

There is much talk of the precarious financial position of Japan, but this is as much beside the point as if one were to consider only the outstanding notes of a large farmer and entirely overlook his large acreage of fertile land and his cattle, orchards and gardens. It is only a question of time until Japan, if left undisturbed, will have developed a volume of trade that will render its financial position secure.

People who should have a clearer understanding of the matter frequently make the statement that Japan's course in China is an Asiatic variety of the Monroe Doctrine. Catch phrases like this serve only to mislead the unthinking. The actual fact is that if the policy laid down by John Hay had been followed to its logical conclusion China would in time have become a rich and powerful nation, while Japan would have been cut off from securing the resources of coal and iron she so urgently needed. American indifference, Chinese ineptitude, and Japanese foresight and cleverness have remedied this, to the Japanese, intolerable situation.—"The New Republic."

ENGINEERING, FINANCIAL AND INDUSTRIAL NEWS

RAILWAYS

Kiangsu Railway Project.—According to the British Consul General at Nanking there is but little to report regarding railways. The proposed Wusih-Huchow Railway has been duly registered in Kiangsu, Anhui and Chekiang, the three provinces through which the line is to run, but nothing else seems to have been done. It is possible that an attempt may be made to start work in the spring, always provided it has been found possible to raise sufficient funds.

In the Provincial Assembly the suggestion was that the extention of the Lung-Hai Railway to the coast should run through Tsingkiangpu to Haichow, instead of direct to the latter place; while Tsingkiangpu was then to be connected by rail with Chinkiang along the line of the Grand Canal. That the Central Government is inclined to frown on this proposal is indicated by the fact that it intimated the capital must be raised locally, which is usually quite sufficient to prevent any schemes of this nature from materialising.

Railroads in Siberia.—The *Priamurie*, recalling that March 17, 1917, will mark the twenty-sixth year since the beginning of the construction of the Ussuri Railroad, gives the following details of the Great Siberian Line:

The Amur Railroad, with the exception of the Amur bridge, is complete. Its total length from the station Kuenga to Khabarovsk is 1,247⅓ miles; the branch line from Bochkarevo to Blagovyeshtchensk is 68 miles long (from Kuenga to Blagovyeshtchensk the distance is 90⅔ miles); small branch lines—Tchassovinskaya, Reinovskaya, Tcherniaevsaya, Innokentievskaya, Vladimirovskaya, and others—118 miles. The Ussuri Rrilroad from Vladivostok to Khabarovsk is 478 miles long; from station Nikolsk-Ussurisk to station Pogranitchnaya, of the Chinese Eastern Railroad, 76⅔ miles. It has 22⅔ miles of spur lines.

In the 25 years since the beginning of construction of the Great Siberian Line, there have been built in Russian territory alone 5,255⅓ miles of railroads divided as follows: Samara Ufa Tchelyabinsk (Samara-Slatoustovskaya Railroad), 628 miles; Tchelyabinsk-Irkutsk (Omsk and Tomsk line), 2,044 miles; Irkutsk-Kuenga (Transbaikal line), 858 miles; Kuenga-Khabarovsk (Amur line), 1,247⅓ miles; Khabarovsk-Vladivostok (Ussuri line), 478 miles.

The distance from Samara to Vladivostok via the Chinese Eastern Railroad is 4,692 miles; Samara-Irkutsk, 2,672 miles; Irkutsk-Manchuria, 948⅔ miles; Manchuria-Pogranitchnaya, 926 miles; Pogranitchanaya-Vladivostok, 145⅓ miles.

The following lines in Siberia are also completed: Altai Railroad, 500 miles; Atchinsk-Minusinsk Railroad, 287⅓ miles; Kolchuginskaya Railroad, 139⅓ miles; Kulundinskaya Railroad, 196⅔ miles (over 66 miles ready); Omsk-Tyumen line, 354⅔ miles. The Siberian and Transbaikal Railroads are double tracked to a great extent. The Ussuri line has undergone an almost entire reconstruction.

New Siberian Railways.—According to "Torgovo-Promyshlennaya Gazeta" (Petrograd) the Committee for the Construction of New Railways have decided on the construction of lines, as follows:—

Caucasus:—The construction of a line from Grachi to Tikhoretskaya is to be undertaken first, and then lines from Tikhoretskaya to Byelorechenskaya, and from Novogeorgievsk to Orel.

Siberia:—The Kostroma-Krasoufimsk-Ufalei-Ishim-Tomsk line is to be constructed first. In Southern Siberia a line from Orsk to Akmolinsk and Pavlodar is to be built, with a branch from Akmolinsk to Semipalatinsk. In the Lena region the Irkutsk-Ust-Igli line is to be constructed first.

Man Power Tramway at Swatow.—Particulars of the light railway, mentioned in report by Mr. S. Wyatt Smith, show that the scheme contemplates a man-hauled tramway only. The promotors are five local Chinese merchants, one a native of Formosa. The capital of the Company, known as the Swatow Chunglim Light Convenient Railway Company, is $150,000, divided into 3,000 shares of $50 each. The total length of the line is about twenty miles. The line runs through a thickly populated district from Kialat, the suburb of Swatow, via Chenghai, Neiyang and Tanglee to Chunglim. The gauge of the line is 19 inches, and the rails, cars and other material are being imported from Japan. Work is already in progress under the supervision of a Japanese civil engineer, and should be completed by April. The cars, which are to be pushed from behind by coolies, are small and capable of seating four persons only.

FINANCE

Hongkong Bank Notes.—The returns of the average amount of bank notes in circulation and of specie in reserve in Hongkong, during the month ended January 31st, 1917, as certified by the Managers of the respective Banks, are as follows:—

Chartered Bank of India, Australia and China...	$7,831,352	$5,000,000*
Hongkong and Shanghai Banking Corporation...	26,230,516	20,000,000
Mercantile Bank of India, Ltd.	1,079,489	550,000†
Total	$35,141,357	25,550,000

* Sterling Securities deposited with the Crown Agents valued at £150,000.

† Securities with the Crown Agents £70,000.

Japan's Revenue Results.—The actual results of revenue for the present fiscal year, as shown in the official statement published by the Japanese Department of Finance, are quite favourable and the total increment as compared with the previous year comes to 83,628,810.346 yen. Up to December the Government floated loans and drew on the balance brought over to no small extent, and that is largely responsible for the increment in extraordinary revenue. The net increase in revenue, therefore, is estimated at 41,793,779 649 yen, for which tax revenue and receipts from State undertakings and State property are largely responsible.

The increment in tax receipts is estimated, at the end of December last, at 18,047,424 232 yen. The only exception to the general rule is land tax, which fell away to the extent of 444,798.232 yen to the close of last year. Income tax receipts, on the other hand, witnessed so large an increase as 5,026,840.220 yen probably as the result of prosperity in business circles. Customs revenue also showed a fairly large increase by 2,412,811.895 yen, evidently as the result of the improvement recorded in the import trade.

State undertakings and State property witnessed an increase by 18,939,021.934 yen in the total receipts. Among those items postal, telegraphic, and telephonic services fetched 7,538,370.904 yen more during the nine months of the year because owing to the war and the resulting increase in telegraphic communications, overseas telegraph operations were extraordinarily active. Stamp duties also maintained the mark scored before quite well, recording an increment by 4,386,623.127 yen.

The following is the summary of the official statement:

Items	Figures for 1916	Figures for 1915
	Ordinary.	
Tax receipts...	175,161,093.117	157,113,668.835
Land tax......	26,250,067.715	26,694,865.948
Income tax...	23,690,897 415	18,663,957.195
Business tax.	13,724,084.125	13,168,011.880
Sake tax......	44,772,831.732	41,847,911.957
Sugar Consumption tax.....	16,956.035.180	13,202,912.780
Textile tax...	10,424,270.840	9,788,767.880
Customs duties.......	23,822,880.830	21,107,213.385
Others.........	15,822,880.830	21,640,027.860
Stamp duties.	23,252,573.330	18,875,950.203
State undertakings and State property...	68,604,121.747	49,665,099.813
Miscellaneous...........	3,750,524.636	2,388,621.010
Transferred from the account of Taiwan.....	3,689,029.060	3,000,000.000
Transferred from the account of Chosen......	4,166,333.504	5,796,555.834
	Extraordinary.	
Proceeds of loans.........	1,276,744.000	474,012.000
Balance brought over.........	125,346,009.185	86,227,645.331
Others.........	27,692,353.954	25,778,439.111

MINES

Tungsten in Malay Peninsula.—The Malay States Information Agency in London calls attention to the following particulars regarding the exports of tungsten ores from Malaya, taken from the last report of the Senior Warden of Mines in the Federated Malay States:—

It is not generally realised that tungsten ores do not occur in the Federated Malay States in defined deposits; by far the greater bulk is found in small quantities, irregularly intermixed with tin ore and valueless matter, and consequently any large increase in output is impossible Every effort has been made by the authorities, however, to stimulate production, the export duty having been suspended and special terms granted to prospectors.

The total quantity of tungsten ores exported from the Federated Malay States in 1915 amounted to 291 tons, as compared with 261 tons in 1914 and 225 tons in 1913, most of this being ore containing less than 65 per cent. of tungstic acid. In addition to these exports, tungsten ores aggregating 404 tons were imported from other countries in 1915 and re-exported after treatment at separating works in the States. The value of wolfram alone exported from the Federated Malay States in 1915 was £32,174.

The quantities of wolfram imported into the Straits Settlements from the undermentioned territories during 1913-15 were as follows:—

——	1913. Tons.	1914. Tons.	1915. Tons.
Burma	115	28	22
British Malay States...	268	230	220
Siam	270	179	266
Netherlands East Indies	—	—	18

The value of the total exports of wolfram from the Straits Settlements in 1915 was £69,900, as against £54,130 in 1914 and £74,638 in 1913. The principal countries to which these exports were consigned are shown in the following table:—

——	1913. Tons.	1914. Tons.	1915. Tons.
Belgium	21	—	—
France	129	103	183
Germany	527	307	—
United Kingdom ...	5	76	400

It should be explained that the excess of exports over imports is not due to mining of wolfram in the Straits Settlements, but to its extraction from the tin-ore sent for treatment to the large tinsmelting establishments in the Colony.

* * *

Japan's Supply of Pig Iron.—Pig iron is in a good position and no appreciable effect has been apparently produced by peace reports on the general tendency in the market. It is, indeed, held by some sections, that the present level of prices will be maintained for the time being and if consumption and other circumstances be equal the market will be confronted with extreme difficulty on account of the scarcity of stocks. While the consumption of pig iron has markedly increased as the result of a great expansion witnessed in the different lines of industry of late, the supply of pig iron from Kamaishi has been curtailed in Tokyo probably owing to the repair to the smelting furnaces at the mine, and according to a local firm something like 4,000 tons of scrap iron has been purchased by Tokyo men from Osaka to make good the shortage in the supply.

The Wanishi Iron Foundry produces over 20,000 tons, but the best part of the products is consumed by the Nippon Steel Works and only an insignificant quantity is supplied to the market. Accordingly the increased activities of the foundry have no effect on the market generally. The products of the Penchihu Iron Foundry are regularly supplied to the market here, but they are quickly absorbed by machine and machine-tool manufactures.

Hanyang pig iron will, on the other hand, be held from the market for some time to come owing to the lowering of the water marks on the river Yangtze, while Tata goods are taken by other countries in Asia and Oceania and only a fractional quantity is available for the market here. Thus all circumstances point to the continuance of the present stringent condition for some time to come, and unless the supply of European or American goods be resumed it will be little relieved.

However, some veterans in the line of business contradict the assumption that by the coming Spring there will be an iron famine in this country, saying that the Government Iron Foundry has sold and will sell its products for the purpose of relieving the scarcity of the goods in the market and the visible stock in the market will be kept to a fixed level always.

* * *

Kuhara Mining Company.—The Kuhara Mining Company at an ordinary general meeting in the Osaka Chamber of commerce declared a dividend at 35 per cent per annum for the half year just terminated. At the meeting Mr. Fusanosuke Kuhara, the President of the company, in reply to an inquiry from some shareholders, stated that in view of the company's enterprises both at home and abroad the company would have to increase its capital sooner or later, but he was not in a position to state expressly the amount of the proposed increase nor the date when the plan will be carried out.

It was however, understood by all present that he was conducting investigations in the matter and as soon as the payment of new shares is completed in March the result will be announced by him in some tangible shape.

As for the business prospect of the company Mr. Kuhara is reported to have stated at the meeting that the working of the Kozan Copper Mine in Chosen just purchased from the American owner was begun last month. Beside, negotiations are in progress in Chosen for the purpose of buying another mine, but they have not reached the final stages. In North Borneo not only oil fields but rubber plantations have been purchased and both are managed side by side. Their prospect is very good and the plantation of palm trees alone may yield large profits. In Taiwan and Singapore the company is endeavouring to purchase mines but no definite statement can be made regarding negotiations.

* * *

Japan's Mine Accidents.—The Department of Agriculture and Commerce reports that during 1915, 148,868 mine accidents took place in Japan, 847 miners being killed and 149,129 injured. The Department says that the number of mine accidents has been decreasing every year, but still there have been recorded a large number of casualties in mines, and to prevent the occurrence of such disasters the Department recently adopted the plan of establishing experimental stations in the mining districts and instructing the miners how to take proper precaution against accidents.

The investigations of the department proved that a large percentage of the total accidents in Japan was caused by the carelessness and ignorance of miners. The first of such experimental stations has already been established in Fukuoka Prefecture, and the result of the work done in educating the miners and in preventive measures against accidents has been very satisfactory. Several similar stations will shortly be established.

* * *

India Bans Pig Iron.—A certain shipping company in Tokyo has received a telegram from its Bombay agent that the Indian Government has prohibited the export of pig iron and though shippers have tried to induce the Government to retract it, no result has been obtained so far. India's supply of pig iron has been quite substantial in this country though last year's arrival was as small as 30,000 tons to 40,000 tons owing to the war's exigencies. In 1911-12 the total arrival amounted to 5,089 tons but in the following year the total import stood at 20,100 tons. Just before the war the annual import was estimated at 65,318 tons. According to old hands in this line of trade, India prohibited the export of pig iron some months ago, but the shipment to Japan has been so far permitted under special licenses. The present prohibition which is absolute, and nullifies the former licenses will affect Japan's iron trade to no small extent.

* * *

Osaka Iron Works.—The Osaka Iron Works held an ordinary general meeting on January 25 in the Osaka Chamber of Commerce to receive the board's report on the company's working for the latter half of last year. The business result for the term has been appreciably better than in the previous period and the balance available for distribution amounts to 1,283,000 yen in round figures. Out of this figure 200,000 yen is set aside for reserve, 100,000 yen for extraordinary reserve, 100,000 yen for officers' bonuses, 300,000 yen for secondary reserve, and 469,000 yen for dividends, the residue by 214,000 yen being carried forward. The rate of dividends comes up to 15 per cent. per annum, which is an increase by 3 per cent per annum over the previous period.

* * *

Hokkaido Iron Foundry.—The plan of enlarging the Wanishi Iron Foundry in Hokkaido, which has been owned and controlled by the Hokkaido Tanko Kisen Kaisha as its adjunct, and making it an independent concern, promoted by the business men belonging to the Mitsui coterie has just been realized and Hokkaido now has an iron smelting works which can turn out 170 tons of steel per day. The company thus formed will conduct business under the style of the Hokkaido Iron Smelting Company with a capital of 3,000,000 yen fully paid up. At present the company has a furnace with a capacity of 80 tons a day, but in April another furnace with a capacity of 100 tons will be added.

* * *

Mine Prospecting in China.—Mr. Ku Chung-hsiu, Minister of Agriculture, has received instructions from the President to obtain detailed *data* regarding the mining resources of the country and to proceed energetically with the development of mines. Mr. Ku has now appointed Mr. Wang Cheng-shan, who is the technical expert in the Ministry, to prospect the minerals of Shantung and Fentien. Liu Chi-cheng and Chao Ju-chun are sent to Anhwei to prospect the coal mines. Chou Chiu-ling is sent to Shansi to prospect the iron and coal mines in that province. The Minister has also notified the Governors of those provinces regarding the coming visit of the mine prospectors.

* * *

Penchihu Steel Works Enlarging.—The Penchihu Coal and Steel Works Co. is expecting to increase its capital by 3½ million yen, bringing the total up to Y8,650,000, in order to enable the Works to turn out 100,000 tons of pig iron a year instead of the present manufacturing capacity, which is limited to 60,000 tons a year. Mr Kisnichiro Okura, the son of the promoter of the concern, is expected to arrive at Penchihu soon to hold a general meeting of shareholders to decide upon the matter. As the Company is jointly capitalized by Chinese and Japanese, the amount to be increased will theoretically have to be put up share and share alike by both parties. But in case the Chinese side is unable to produce its portion, the necessary sum will be advanced by Messrs. Okura and Co. in the shape of a loan to the Company. Machinery required for the expansion already has been constructed in Japan and at the workshops of the South Manchuria Railway Co., the work can at once be started when the proposition is favorably considered at the meeting.

* * *

Ores and Metals from South China.—Some 75 piculs of iron magnetite ore have been exported from Hoihow for the first time to Hongkong. The shippers were Messrs. Fu Yu, a local Chinese firm, compradore for the Standard Oil Company. The ore was excavated by villagers at a place called Shi Ku Ling in the district of Ching Mai, about 40 miles west of Hoihow.

Small shipments of antimony ore continue to be made from Pakhoi. So far 1,616 piculs have been shipped this year. The ore is being worked by two Chinese companies viz., (1) The Wu Li Company c/o Messrs. Jui Hing Lan, Tung-hing, and (2) The Yu Ming Company, c/o Messrs. T'ung Shun Ch'eong, Tunghing. The shippers from Pakhoi are Messrs. Hang Shing, Shing Sen, and Tong San.

Deposits of manganese ore are being worked by the Yu Ch'in Ming Company near Nata and thence shipped by junk to Pakhoi, a distance of 85 miles. The ore is dumped on the seashore at Pakhoi where it is left until a Japanese steamer comes to take it away.

Mines in Fukien.—The discovery of a copper mine at Ao-ping-hsiang in Put'ien Hsien, Fukien Province, is reported in the Chinese press which says that two officers sent down from Peking to investigate mining prospects in Fukien province have examined over a score of mines, and there are some 300 still awaiting inspection. Of these the chief centres are:—

Iron Mines: In Ankhi, Yungch'un, Tehua, Kut'ien, Nanching.
Silver and Lead: In Ping-nan and Ku-t'ien.
Molybdenum: In Yung-ch'un.
Copper: In Nan-p'ing.
Coal: In Lung-an, Shao-wu and Ting-chou.
Gold: In Kien-ou and T'ai-ning.
Tin: In Lien-ch'eng.
Zinc: In Cheng-ho.
Silver: In Yung-t'ai and Yung-ch'un.

The Kien-ning Mining Co. has applied to extend its term to commence working owing to difficulty in procuring machinery. Other mines produce soap stone, lime, pottery-clay, etc. The Chinese Board of Commerce recommends an extended use of dynamite manufactured in the Hanyang Arsenal for mining purpose.

Tin in Hainan Island.—On December 18th, 113.50 piculs of tin ore valued at Tls. 3,405 were exported to Hongkong per s.s. Portugal. The ore came from the Chiao Hsing Company's mines near Nodoa. The Company—all the shareholders in which are Chinese—was started in 1907 to exploit the natural resources of the island but the difficulties of transport have much hindered their operations and no attempt has been made to introduce modern methods.

Japanese Copper for Italy.—According to the *Jiji*, copper refineries in this country have received an order through London merchants for about 3,000 tons of electrolytic copper to be shipped to Genoa, and negotiations are now proceeding. This is the first time that an Italian order for electrolytic copper has been received by Japanese merchants. They are not very eager to undertake the order it is said because of some anxiety regarding payment and the difficulty of securing the necessary tonnage for the Mediterranean.

INDUSTRIAL

Industrial Development of Wuhu.—A Chinese company has been formed with the object of erecting a Cotton Spinning Mill in Wuhu. The enterprise will be a considerable one, beginning with 10,000 spindles and later increasing to 15 or 20,000. Ginning and weaving plant will be included. A contract for the supply of the necessary textile machinery has been placed with a British firm.

The Wuhu Electric Lighting Plant is no longer adequate for the necessities of the place and additions to the existing plant are in contemplation.

Wuhu has never had any system of public telephones. A small private telephone exchange exists between the various Government departments. A company has now been formed with a capital of about $20,000 with a view to supplying the demand for a general telephone system. Application for the registration of the company has been made to Peking and nothing can, of course, be done until official sanction has been secured. It is feared that Government opposition may be offered as was the case some ten years ago when a similar enterprise was first mooted.

Kanegafuchi Cotton Co.—The Kanegafuchi Cotton Spinning Company at an ordinary general meeting reported on the company's working for the latter half of last year which shows a net profit of 3,538,386.237 yen. This amount together with the balance brought over to the extent of 2,684,494.234 yen is available for distribution. At the meeting the board will recommend the distribution of ordinary dividends at 12 per cent. per annum and special dividends at 4 per cent. per annum besides extra dividends at 14 per cent. per annum, for which 897,997.80 yen, 299,332 60 yen, and 1,047,664.10 yen are set aside respectively. Out of the residue 500,000 yen is written off to reserves, 100,000 yen to pension fund, 100,000 yen to the fund for the promotion of operatives' welfare, 150,000 yen to extra allowances to operatives, and 150,000 yen to bonuses for officers, the rest to the extent of 2,977,885.971 yen being carried forward to next account.

Japan's Machine Shops.—The war stopped the import of large type engines and motors as soon as it broke out and Japanese industrial workers have been annoyed very much since, but now, according to the result of investigations, they are being made here better than some time ago, thanks to the strenuous endeavours of machine makers in this country.

Water mill equipments have especially been improved by Japanese machine constructors and their recent manufactures, which have been judged by all experts as complete in every detail, can produce 3,000 H.P. to 6,000 H.P. Steam engines and steam turbines are also built and they are employed by factories with splendid success. Some of the latest manufactures are said to be working quite well, being coupled with generators of 12,000 kilowatts. Gas and oil engines, made at home, are fast replacing foreign-built ones and so far no complaints have been heard of their defects.

As, however, no adequate statistical returns are available their maximum amount of production exclusive of marine engines and electric motors is not known, but the import of foreign engines is gradually falling off. In 1913 the imports were valued at approximately 3,700,000 yen, but in 1914 the total value stood at 2,080,000 yen. The figure for 1915 was still smaller at 989,000 yen. In some sense this gradual decrease in the value of imports represents the development of the line of business in this country, and if the import of cheaper goods does not arrest it, it may some day assume a very important position in Japan's industrial circles.

Dairen Sulphuric Acid Factory.—H. M. Consul at Dairen reports that the Government-General of the Leased Territory of Liaotung is contemplating the erection of a sulphuric acid factory. It is hoped the work will be sufficiently far advanced to admit of the manufacture of the acid being started in the Spring of 1917. The enterprise is on a small scale, however, the intended daily output of acid being only 20 tons. The market price of the acid is to be fixed by the authorities.

Glass Manufacture at Chefoo.—Chefoo obtains its supply of glassware principally from Shanghai, but Japan and Dairen share in the trade to some extent. The town of Chefoo itself once had its own glass factories only one of which still persists. To begin with, there was a workshop called the Tung-shih-Poli-Kungssu with Chinese capital of $20,000, where lamp chimneys and small bottles were turned out. But owing to clumsy workmanship, the product was poorly received by buyers, and the factory was finally shut down in September, last year. Then, there was a Chinese, who started a glass factory under the name of Hung-i-Kungssu by bringing Japanese workmen from Dairen. It turned out table-ware, flower vases, electric lamp shades, etc., which found a ready market. But this was also compelled to close its doors in October owing to the lack of capital. An attempt was made last autumn by a few Japanese to manufacture lemonade bottles to be shipped to Tientsin, but being unable to dispose of broken or imperfectly made bottles they had to give up the scheme. The manufacture of window glass was attempted by the owner of an iron factory, but owing to the imperfect equipment and the incompetency of men in charge, the enterprise ended in a failure. Preparations are now being made by a certain Chinese merchant to engage in work of a similar nature, under the surpervision of a Chinese expert, who was with the Poshan Glass Factory. There is one factory, however, which seems to be doing well, and that is owned by the Chang-Yu Kungssu, the makers of native wines. This was established in 1912, and now is manufacturing all the bottles needed by the Company. A European expert is superintending the work.

Isinglass Makers Combine.—As recently mentioned, isinglass manufacturers in Osaka, Kyoto, and Hyogo prefectures have been considering a proposal to restrict their operations as a means of sending up the price of isinglass, which has been lost owing to its abundant output. Recently they held a meeting in Osaka, and decided to stop operations altogether for the year from February, while the usual period of operations extends up to March 15th. Isinglass manufacturers in Nagano prefecture also followed suit, and decided to operate only up to February 13th instead of March 10th as usual. It is calculated that these restrictions will reduce output by from 600,000 to 650,000 kin. The isinglass market has accordingly become firm, though there has been no change in quotations.

500 Per Cent Dividend.—Last year there was a shipping firm in Kobe conducted by one of the largest funa-narikin, ("war baby" or *nouveau-riche*), which paid a dividend of 500 per cent. per annum There have been no companies in any branch of trade and industry rivalling that dividend, but the same enormous rate of dividend is now declared by a paper manufacturing company in Osaka. The Nakanoshima Paper Mill Company held a general meeting of shareholders and passed the following settlement of last term's accounts:—

Net profit	Yen 478,658
Brought forward	7,885
Total	Yen 486,543

To legal reserve	25,000
Dividend, 500 per cent	415,000
Bonuses	29,000

The company's dividend for the previous term was 50 per cent.

COMMERCE

The Vladivostock Cargo Ban.—It is reported that the Russian Government has modified its regulations regarding the import of the goods required for consumption in the Russian Littoral Provinces. The modified clause is said to be that the import of private goods required for consumption at the port and district is permitted but a certificate must be obtained from the special committee formed under the supervision of the Commander of the Forts at Vladivostock as to whether they are really required for local consumption.

Manchurian Beet Sugar Outlook.—Beet sugar is to be manufactured by the Japanese on a large scale in Manchuria on the strength of the results obtained by the Agricultural Laboratories of the South Manchuria Railway Company in the Railway Zones, a company, as already reported, having been promoted for the special purpose by some business men who have ample experience in the sugar manufacturing industry.

The line of business in Japan dated from 1870, when beet was transplanted from Europe to Mombetsu, Hokkaido, and an attempt was made to turn out beet sugar. Two decades later another attempt was made at Sapporo under Government protection. Both resulted in failure.

Only recently experiments were started by the South Manchuria Railway Company in the Railway Zones in view of the similarity of climatic conditions in Manchuria to the sugar-producing countries in Europe. Splendid success has been obtained at Liaoyang, Kaiyuan, Chanchung, Kuntzeling, and other parts, and now on its strength the South Manchuria Sugar Manufacturing Company which has just been promoted is resuming the business that was once given up as hopeless.

If the company is successful in carrying out its original plan of business, its production will reach a level of 14,000,000 kin in three years. In view of the great part it will play in the development of Manchuria the South Manchuria Railway Company is reported to have decided to back the enterprise with all means in its power.

Hide Trade of Hankow.—During the period from October to December, 1916 trade in the principal staples, untanned goatskins, sesamum seed and cotton, was very active at Hankow although high freights and shortage of tonnage continued to affect the volume of business. There was an unprecedented demand from America for hides and skins, sending up sterling prices to phenomenal figures. Hides advanced about 20 per cent during October and a further 25 per cent in November. Prices of goatskins at the market in October were about 20 per cent above last season's and advanced in November by from 75 per cent to 100 per cent according to the district of origin, but during November the American market was affected by the sudden stoppage of orders from the Allied Governments and rumours of peace negotiations, with the result that sterling prices declined by about 25 per cent. Hides remain fairly firm and there is still a good demand.

RUBBER

Singapore Rubber Ban.—The Straits Settlement Government has decided to levy export duties on rubber shipped through Singapore. This will be a heavy blow to Yokohama, which has imported rubber from Singapore at an increasing rate recently, to meet the increased demand from domestic industrial workers. According to official returns, the total import of rubber for Yokohama during 1913 was 1,232,000 yen, of which figure 659,000 yen went through Singapore. Last year this figure witnessed a remarkable increase, and up to the close of November 2,879,000 yen worth was imported, the share of the Straits being 2,109,000 yen, viz., 73 per cent.

F.M.S. Rubber Output.—An official cablegram from Kuala Lumpur reports that the export of plantation rubber from the Federated Malay States for the month of December amounted to 5,717 tons compared with 6,776 tons in November (which was the highest on record), and 5,111 tons for the corresponding month of 1915. The total export for the past year amounted to 62,763 tons, as against 44,524 tons in 1915, and 30,697 tons in 1914. In 1909 the total export was only 2,641 tons, and in 1910 (the year of the "boom") 5,452 tons, or less than is now exported in one month. The Federated Malay States export of plantation rubber is about half of the world's output. Appended are the comparative statistics:

		1914.	1915.	1916.
January	tons	2,542	3.473	4,471
February...	,,	2,364	3,411	5.207
March	,,	2,418	3.418	4,429
April	,,	2,151	2,777	3,914
May	,,	2,069	2,708	3.956
June	,,	2,306	3,403	5.114
July	,,	2.971	3,687	5,053
August	,,	1.850	3.796	5,782
September	,,	2,879	3.984	6.376
October	,,	2.897	4,120	5,968
November	,,	2.889	4.636	6,776
December	,,	3.361	5,111	5.717
Total	,,	30,697	44.524	62,763

Hainan Now Rubber Producer.—Thirteen piculs of rubber exported from Hainan during the year 1916 were valued at Tls. 497. The export figures for 1915 were 3.41 piculs valued at Tls. 134. Rubber seeds continue to be imported from Singapore and the rubber trade of the island may be expected to increase.

Rubber Goods in Japan.—Japan's rubber goods industries are making significant progress. Of the nation's demand 9,000,000 yen worth are supplied by domestic goods, while imported articles only amount at about 800,000 yen. Many of the factories are suspending their work temporarily in view of the situation.

All the material used to be supplied from foreign markets but the import has waned due to limitations set by exporting countries.

Rubber in Burma.—The rubber industry is developing in Burma, the export increasing from 310,000 lb. in 1901 to over 1,250,000 lb. last year. The terms for the holding of rubber plantations have been a matter of dispute, and Sir Spencer Harcourt Butler, Lieutenant Governor of Burma, appointed a committee, consisting of the Financial Commissioner and two members of the Planters' Association, to settle the terms. An agreement has now been reached which satisfies everybody, on the basis of a low annual assessment plus a royalty, as the net value of the rubber produced varies from time to time.

PETROLEUM

Taiwan's Oil Fields.—Apparently Formosa is believed to have a great future as an oil producing district by the authorities of Taiwan and some mining magnates for they continue active investigation and prospecting in many parts of the island colony in spite of the somewhat meagre results so far obtained. At present, oil sands are in evidence in many parts of the island though it is doubted by experts whether they, being exposed to the air, will contain much oil. At Shinchiku prospecting is carried on by the Hoden Oil Company. Wells were bored at six points along a river. According to the company's report for 1915 the total production of crude oil for the year is estimated at 15.933 koku valued at 79,669 yen. At present the daily output at those wells is roughly 50 koku and there is a sign of increase, but the field is very small and the oil produced is only of 39 degrees.

The Japan Oil Company has been for some time past prospecting at Kagi. The results are said to be nil. At present a new well is being bored and according to a recent report a depth of 385 ken has been reached. At Ako the Navy Department is engaged in prospecting, but no tangible result is said to have been obtained.

SILK

Wild Cocoons at Antung.—This year's wild cocoon crop in the wild sericultural centre around Fenghuangcheng has turned out a general failure, the harvest falling short of even one-quarter of last year's, only 9,000 baskets of wild cocoons have been put on the Antung market, as against some 54,000 baskets last year. Only 1,000 baskets, which are less than one-half of the amount for a usual year, have so far been shipped to Chefoo.

Tussah Filature for Antung.—Tussah silk at Antung continues firm and ranges from Y650 to Y690 per bale for goods of fine quality, says aTairen report of February 3. Even goods of ordinary quality are quoted at about Y640. The prices at Chefoo are about Y50 higher all round. This difference seems more ascribable to the good reputation the Chefoo goods have earned than superiority in quality.

The majority of tussah silk produced at Antung and Chefoo being shipped to Japan, the idea of founding a tussah silk filature at Antung, which is one of the greatest wild cocoon centres in South Manchuria, has suggested itself to some of the filaturists of Japan.

RIVERS AND HARBORS

Conservancy in Fukien.—A scheme to make a navigable channel from Pagoda Anchorage to Foochow, first for cargo-boats and ultimately for ocean steamers, has been mooted by the Commissioner of Customs, the shipping guilds agreeing to pay a small tax to produce the necessary funds. The sum required is at least 1½ millions of dollars, while the ultimate success may be open to doubt. A seemingly preferable scheme would be to open a new port on deep water on the coast and to connect it to Foochow by railway.

The native press reports a suggestion to open Sha-ch'eng in Futing Hsien on the Chekiang border as a port of call for steamers.

MAP OF IMPERIAL GOVERNMENT RAILWAYS